

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.96
Test oil : ISO 4113
Combination No. : 0 400 075 930
Injection pump
Pump designation : PES5M55C320RS177
EP type number : 0 410 055 974
Governor
Governor design. : RSF340/2300M74-1
Governor no. : 0 420 021 156

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602A-D/A (KAT)
Power KW : 92.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 469 990 351
Inlet press. bar : 1.0
Test nozzle holde
assembly : 1 688 901 111
Opening pressure
bar : 148.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Tolerance mm : ± 1.00
Firing order : 1- 2- 4- 5- 3
Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 13.75
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 52.2
Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : +- 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 345

Rack travel in mm : 6.20
Tolerance mm : +- 0.10

Del. quantity
cm³/1000 strokes : 8.5

Tolerance
cm³/1000 strokes : +- 0.5

Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : +- 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity
cm³/1000 strokes : 52.2

Tolerance
cm³/1000 strokes : +- 0.5

Check tolerance
cm³/1000S. : +- 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.75

LOW IDLE

control lever
position degree : 10.0
tolerance degree : +- 2.0

Setting point w/out bumper spring

Rated speed rpm : 345

rack travel mm : 6.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450

rack travel mm : 4.60

Tolerance mm : +- 0.10

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 8.00

Rated speed rpm : 1000

CRT mm max. : 1.75

rack travel mm : 6.20

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.75

Tolerance mm : +- 0.05

Rated speed rpm : 1600

rack travel mm : 13.10

Tolerance mm : +- 0.10

Rated speed rpm : 2200

rack travel mm : 12.30

Tolerance mm : +- 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.45
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -3.05
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -5.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 50.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 58.8
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.7
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 37.00
Grad : < 34.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.0
tolerance degree : \pm 2.0
Rated speed rpm : 340

Rack travel in mm : 13.80
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Set quantity with
control lever
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 0.5
Voltage Volt : 1.636
Tolerance Volt : \pm 0.003

Check tolerance
Volt : \pm 0.001
ADJUSTMENT

control lever
position degree : 50.0
Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Rack travel in mm
Voltage Volt : 2.487
Tolerance Volt : \pm 0.030
Check tolerance
Volt : \pm 0.060

Rated speed rpm : 1000
rack travel mm : -1.30
Tolerance mm : \pm 0.15

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 345

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.96
Test oil : ISO 4113
Combination No. : 0 400 076 956
Injection pump
Pump designation : PES6M55C32ORS181
EP type number : 0 410 056 983
Governor
Governor design. : RSF305/2125M64-20
Governor no. : 0 420 021 168

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603A D35 USA
Power KW : 110.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 61.0

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : + 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 280

Rack travel in mm : 6.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : + 0.5

Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.50
Tolerance mm : + 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1900

Del. quantity
cm³/1000 strokes : 61.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.50

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Rated speed rpm : 2300

rack travel mm : 0.50

Tolerance mm : + 0.60

Rated speed rpm : 2850

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

LOW IDLE

control lever

position degree : 10.0

tolerance degree : + 2.0

Setting point w/out bumper spring

Rated speed rpm : 280

rack travel mm : 6.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 4.80

Tolerance mm : + 0.10

Rated speed rpm : 600

Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 200

CRT mm min. : > 7.00

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 6.20

Rated speed rpm : 280

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 14.15

Tolerance mm : + 0.05

Rated speed rpm : 1600

rack travel mm : 13.30

Tolerance mm : + 0.10

Rated speed rpm : 2000

rack travel mm : 12.50
Tolerance mm : +- 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.95
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -3.45
Tolerance mm : +- 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -5.20
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1900
Rated speed rpm : 1600
Del. quantity
cm3/1000 strokes : 58.8
Tolerance
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1900
Rated speed rpm : 2000
Spreed
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 strokes : +- 0.5
Check tolerance
cm3/1000S. : +- 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1900

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 9.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

Grad : > 37.00

Grad : < 34.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.0
tolerance degree : \pm 2.0
Rated speed rpm : 305

Rack travel in mm : 12.30
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2700

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1900
Set quantity with
control lever
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 0.5
Voltage Volt : 1.636

Tolerance Volt : \pm 0.003
Check tolerance
Volt : \pm 0.001
ADJUSTMENT

control lever
position degree : 50.0
Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1900
Rack travel in mm
Voltage Volt : 2.517
Tolerance Volt : \pm 0.030
Check tolerance
Volt : \pm 0.060

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 280

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.96
Test oil : ISO 4113
Combination No. : 0 400 076 959
Injection pump
Pump designation : PES6M55C320RS180
EP type number : 0 410 056 984
Governor
Governor design. : RSF315/2300M64-17
Governor no. : 0 420 021 157

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603A-D/A (KAT)
Power KW : 110.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 52.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : + 1.5

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 290

Rack travel in mm : 6.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 9.5

Tolerance
cm³/1000 strokes : + 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity
cm³/1000 strokes : 52.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 1.5

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 3000

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.75

LOW IDLE

control lever
position degree : 10.0
tolerance degree : + 2.0

Setting point w/out bumper spring

Rated speed rpm : 290

rack travel mm : 6.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + 0.10

rack travel mm : 2.50
Rated speed rpm : 630
Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 200

CRT mm min. : > 7.00

Rated speed rpm : 1000

CRT mm max. : 1.75

rack travel mm : 6.30
Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.75
Tolerance mm : + 0.05

Rated speed rpm : 1600
rack travel mm : 13.20
Tolerance mm : + 0.10

Rated speed rpm : 2200

rack travel mm : 12.40
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -3.15
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -5.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 59.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 9.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 37.00

Grad : < 34.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.0
tolerance degree : \pm 2.0
Rated speed rpm : 250

Rack travel in mm : 13.80
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Set quantity with
control lever
cm³/1000 strokes : 22.2
Tolerance
cm³/1000 strokes : \pm 0.5
Voltage Volt : 1.636

Tolerance Volt : \pm 0.003
Check tolerance
Volt : \pm 0.001
ADJUSTMENT

control lever
position degree : 50.0
Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Rack travel in mm
Voltage Volt : 2.487
Tolerance Volt : \pm 0.030
Check tolerance
Volt : \pm 0.060

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 401 846 984
Injection pump
Pump designation : PE6P120A32ORS3327
EP type number : 0 411 826 811
Governor
Governor design. : RQV325...1050PA1107
Governor no. : 0 421 814 077

Cust. part No. : 8363 54522

Customer-spec. information
Customer : VALMET
Motor : 612 DWI

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 197.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.25

Rated speed rpm : 1107
guide sleeve
travel mm : 8.53
Tolerance mm : ± 0.25

Rated speed rpm : 729
guide sleeve
travel mm : 4.61
Tolerance mm : ± 0.25

Rated speed rpm : 411
guide sleeve
travel mm : 2.06
Tolerance mm : ± 0.25

Rated speed rpm : 461
guide sleeve
travel mm : 2.57
Tolerance mm : ± 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 2.79
Tolerance mm : ± 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1215

Rack travel in mm : 9.00
Tolerance mm : ± 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 197.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 48.0
tolerance degree : ± 4.0

control lever
position degree : 115.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.65
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 81.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 225

CRT mm min. : $>$ 7.10

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 11.65
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.65
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 2.10
Tolerance mm : \pm 0.10

Pressure hPa : 360
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.65
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 236.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 046 862
Injection pump
Pump designation : PES6P12DA320RS3337
EP type number : 0 412 026 770
Governor
Governor design. : RQV300...1250PA1149K
Governor no. : 0 421 815 416

Cust. part No. : CCEP 5141A 66-218

Customer-spec. information
Customer : RVI
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.18
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Del. quantity
cm3/1000 strokes : 30.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 5.0

Spread
Tolerance

cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : + 0.20

Rated speed rpm : 1346
guide sleeve
travel mm : 10.55
Tolerance mm : + 0.15

Rated speed rpm : 905
guide sleeve
travel mm : 6.54
Tolerance mm : + 0.25

Rated speed rpm : 381
guide sleeve
travel mm : 2.38
Tolerance mm : + 0.25

Rated speed rpm : 431
guide sleeve
travel mm : 2.98
Tolerance mm : + 0.25

Rated speed rpm : 530

guide sleeve
travel mm : 3.77
Tolerance mm : + 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1380

Rack travel in mm : 10.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 149.0

Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 297.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1330
Tolerance 1/min : + 5

rack travel mm : -7.10
Rated speed rpm : 1410
Tolerance 1/min : + 15

rack travel mm : -10.60
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 244.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -6.30
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm min. : $<$ -5.20

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -2.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1250

Pressure hPa : 160
rack travel mm : -1.40
Tolerance mm : \pm 0.10

Pressure hPa : 280
rack travel mm : -0.35
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1330
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113

Combination No. : 0 402 046 864

Injection pump
Pump designation : PES6P120A32ORS3337
: -1
EP type number : 0 412 026 772

Governor
Governor design. : RQV300...1250PA1149
: -1K
Governor no. : 0 421 815 421

Cust. part No. : CCEP 5142A 66-219

Customer-spec. information
Customer : RVI
Motor : MIDR 06-02-26 W4
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.35
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 202.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.20
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 1328
guide sleeve
travel mm : 9.98
Tolerance mm : \pm 0.15

Rated speed rpm : 876
guide sleeve
travel mm : 6.02
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : \pm 0.25

Rated speed rpm : 1600

guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1415

Rack travel in mm : 12.15
Tolerance mm : \pm 2.03

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 202.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1312
Tolerance 1/min : \pm 5

rack travel mm : -9.20
Rated speed rpm : 1440
Tolerance 1/min : \pm 15

rack travel mm : -12.65
Tolerance mm : \pm 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $<$ -7.40
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250
Rated speed rpm : 850
rack travel mm : -1.85
Tolerance mm : \pm 0.15
Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
rack travel mm : -1.40

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -3.40
Tolerance mm : \pm 0.20

Rated speed rpm : 1000

Pressure hPa : 240
rack travel mm : -2.55
Tolerance mm : \pm 0.10

Pressure hPa : 320
rack travel mm : -1.80
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 127.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1312
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113

Combination No. : 0 402 744 803

Injection pump
Pump designation : PES4P120A320RS7312
: -1

EP type number : 0 412 724 803

Governor
Governor design. : RQV400...1200PA1131
: -1

Governor no. : 0 421 814 154

Cust. part No. : 51.11103-7470

Customer-spec. information
Customer : MAN
Motor : DQ824 LFL 06
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 73.0

Tolerance
cm³/1000 strokes : ± 5.0

Check tolerance
cm³/1000S. : +- 8.0

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 1000

Rack travel in mm : 13.05
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.80
Tolerance mm : +- 0.20

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 400
guide sleeve
travel mm : 1.57
Tolerance mm : +- 0.20

Rated speed rpm : 1261
guide sleeve
travel mm : 10.15
Tolerance mm : +- 0.15

Rated speed rpm : 836
guide sleeve
travel mm : 5.76
Tolerance mm : +- 0.25

Rated speed rpm : 458
guide sleeve
travel mm : 2.45
Tolerance mm : +- 0.25

Rated speed rpm : 508
guide sleeve
travel mm : 3.10
Tolerance mm : +- 0.25

Rated speed rpm : 540
guide sleeve
travel mm : 3.61
Tolerance mm : +- 0.25

Rated speed rpm : 1490
guide sleeve
travel mm : 13.50
Tolerance mm : +- 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1330
Rack travel in mm : 12.00
Tolerance mm : +- 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 301.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1480

LOW IDLE

control lever
position degree : 258.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 300

CRT mm min. : $>$ 7.60

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.80
Tolerance mm : \pm 0.15

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : 8.55
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 12.10
Tolerance mm : \pm 0.25

START CUT-OUT

Rated speed rpm : $<$ 280
Rated speed rpm : $>$ 320

Check
speed 1/min : $<$ 260
Check
speed 1/min : $>$ 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

1

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 744 804
Injection pump
Pump designation : PES4P120A320RS7402
EP type number : 0 412 724 804
Governor
Governor design. : RQV275...1200PA1257K
Governor no. : 0 421 815 494

Cust. part No. : CCEP 5154 66-238

Customer-spec. information
Customer : RVI
Motor : MIDR 04-02-26 A4
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.60
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.40
Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 28.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 6.0

Speed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : + 0.20

Rated speed rpm : 1260
guide sleeve
travel mm : 10.32
Tolerance mm : + 0.15

Rated speed rpm : 938
guide sleeve
travel mm : 6.86
Tolerance mm : + 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1450

Rack travel in mm : 12.10
Tolerance mm : + 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 245.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 298.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1260
Tolerance 1/min : + 5

rack travel mm : -9.10
Rated speed rpm : 1410
Tolerance 1/min : + 15

rack travel mm : -12.60
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 252.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -8.40
Tolerance mm : \pm 0.10

Rated speed rpm : 225
CRT mm min. : < 6.90
Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
Rated speed rpm : 850
rack travel mm : -1.05
Tolerance mm : \pm 0.10
Rated speed rpm : 700
rack travel mm : -1.85
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1200
rack travel mm : -2.70
Tolerance mm : \pm 0.20

Rated speed rpm : 1200
Pressure hPa : 200
rack travel mm : -2.00
Tolerance mm : \pm 0.20

Pressure hPa : 440
rack travel mm : -0.70
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 130
Rated speed rpm : < 275

Check
speed 1/min : > 110
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1260
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : -8.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 746 602
Injection pump
Pump designation : PES6P120A32ORS7359
: -1
EP type number : 0 412 726 949
Governor
Governor design. : RQ275/1050PA1217-1
Governor no. : 0 421 801 798
Cust. part No. : CCEP 5152 66-229

Customer-spec. information
Customer : RVI
Motor : MIDR062045 R41
Power KW : 221.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.60
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.30
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 281.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.30
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 2.19
Tolerance mm : \pm 0.20

Rated speed rpm : 1122
guide sleeve
travel mm : 6.36
Tolerance mm : \pm 0.15

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 408
guide sleeve
travel mm : 5.26
Tolerance mm : \pm 0.10

Rated speed rpm : 480

guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1330
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 281.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -9.30
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -12.80
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 255.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.30
Tolerance mm : \pm 0.10

rack travel mm : -11.30
Rated speed rpm : 395
Tolerance 1/min : \pm 20

Rated speed rpm : 200
CRT mm min. : $>$ -4.60

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.15
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.55
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : -0.60
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100

Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 289.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -7.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113

Combination No. : 0 402 746 603

Injection pump
Pump designation : PES6P120A320RS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information
Customer : RVI
Motor : MIHR062045 A41
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 191.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.10
Tolerance mm : \pm 0.20

Del. quantity
cm3/1000 strokes : 34.0
Tolerance

cm3/1000 strokes : \pm 2.0
Check tolerance

cm3/1000S. : \pm 5.0
Spread

Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.75
Tolerance mm : \pm 0.20

Rated speed rpm : 1145
guide sleeve
travel mm : 6.55
Tolerance mm : \pm 0.15

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 594
guide sleeve
travel mm : 5.11
Tolerance mm : \pm 0.10

Rated speed rpm : 720

guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1380
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 191.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1138
Tolerance 1/min : \pm 5

rack travel mm : -8.30
Rated speed rpm : 1265
Tolerance 1/min : \pm 15

rack travel mm : -11.80
Tolerance mm : \pm 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 255.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.10

rack travel mm : -10.30
Rated speed rpm : 520
Tolerance 1/min : \pm 20

Rated speed rpm : 175
CRT mm min. : $>$ -4.20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.10
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : -0.65
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : -0.25
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100

Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 156.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1138
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.02.96
Test oil : ISO 4113
Combination No. : 0 402 746 645
Injection pump
Pump designation : PES6P120A320RS7364
EP type number : 0 412 726 930
Governor
Governor design. : RQV300...1050PA1204
Governor no. : 0 421 814 123
Cust. part No. : CCEP 5148A 66-236

Customer-spec. information
Customer : RVI
Motor : MIDR 06.20.45D41
Power KW : 219.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.25
Tolerance mm : ± 0.75
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 13.60
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Speed
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.30

Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 26.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 5.0

Speed
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.33
Tolerance mm : + 0.25

Rated speed rpm : 1135
guide sleeve
travel mm : 8.45
Tolerance mm : + 0.25

Rated speed rpm : 752
guide sleeve
travel mm : 6.09
Tolerance mm : + 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.40
Tolerance mm : + 0.25

Rated speed rpm : 415
guide sleeve
travel mm : 3.28

Tolerance mm : + 0.25

Rated speed rpm : 460
guide sleeve
travel mm : 3.86
Tolerance mm : + 0.25

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1230

Rack travel in mm : 11.70
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 277.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0
Speed
Tolerance
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 302.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1130
Tolerance 1/min : + 5

rack travel mm : -9.60
Rated speed rpm : 1300
Tolerance 1/min : + 15

rack travel mm : -13.10
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 267.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 200
CRT mm max. : $<$ -4.80
Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 600
Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -2.40
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.45
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : -0.50
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80

B15

Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1130
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -7.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 746 994
Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914
Governor
Governor design. : RQV275...1000PA1161
Governor no. : 0 421 814 100
Cust. part No. : CCEP 5143A 66-231

Customer-spec. information
Customer : RVI
Motor : MIDR 062045 E/41
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600
Rack travel in mm : 12.60
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.50
Tolerance mm : \pm 0.20

Del. quantity
cm3/1000 strokes : 32.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 5.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.66
Tolerance mm : \pm 0.25

Rated speed rpm : 1086
guide sleeve
travel mm : 8.09
Tolerance mm : \pm 0.25

Rated speed rpm : 793
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.25

Rated speed rpm : 343
guide sleeve
travel mm : 2.33
Tolerance mm : \pm 0.25

Rated speed rpm : 393
guide sleeve
travel mm : 2.95

Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.72
Tolerance mm : \pm 0.25

Rated speed rpm : 1410
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1235

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 282.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : \pm 5

rack travel mm : -8.60
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : -12.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 200
CRT mm max. : $<$ -5.50
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 600
Rated speed rpm : 1000
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -3.40
Tolerance mm : \pm 0.30

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -2.65
Tolerance mm : \pm 0.15

Pressure hPa : 640
rack travel mm : -0.70
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80

Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 283.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -7.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 746 995
Injection pump
Pump designation : PES6P120A320RS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160K
Governor no. : 0 421 815 420

Cust. part No. : CCEP 5144A 66-232

Customer-spec. information
Customer : RVI
Motor : MIDR 062356 A/41
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0
Rated speed rpm	: 300
Rack travel in mm	: -7.80
Tolerance mm	: + 0.20
Del. quantity	
cm3/1000 strokes	: 33.0
Tolerance	
cm3/1000 strokes	: + 2.5
Check tolerance	
cm3/1000S.	: + 5.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.32
Tolerance mm	: + 0.25
Rated speed rpm	: 1103
guide sleeve	
travel mm	: 8.70
Tolerance mm	: + 0.25
Rated speed rpm	: 823
guide sleeve	
travel mm	: 5.92
Tolerance mm	: + 0.25
Rated speed rpm	: 405
guide sleeve	
travel mm	: 2.43
Tolerance mm	: + 0.25
Rated speed rpm	: 455
guide sleeve	
travel mm	: 2.98

Tolerance mm	: + 0.25
Rated speed rpm	: 550
guide sleeve	
travel mm	: 3.66
Tolerance mm	: + 0.25
Rated speed rpm	: 1440
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 1300
Rack travel in mm	: 11.60
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm3/1000 strokes	: 350.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1100
Tolerance 1/min	: + 5
rack travel mm	: -8.60
Rated speed rpm	: 1210
Tolerance 1/min	: + 15
rack travel mm	: -12.30
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.80

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -3.90
Tolerance mm : \pm 0.30

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -2.80
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.70
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 381.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -7.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113
Combination No. : 0 402 946 013
Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021
Governor
Governor design. : RQV275...1250PA1189K
Governor no. : 0 421 815 974

Cust. part No. : CCEP 5146A 66-220

Customer-spec. information

Customer : RVI
Motor : MIDR 06.02.26Y41
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 277.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.90
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 39.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.10
Tolerance mm : \pm 0.25

Rated speed rpm : 1332
guide sleeve
travel mm : 10.07
Tolerance mm : \pm 0.25

Rated speed rpm : 912
guide sleeve
travel mm : 6.79
Tolerance mm : \pm 0.25

Rated speed rpm : 412
guide sleeve
travel mm : 2.53
Tolerance mm : \pm 0.25

Rated speed rpm : 462

guide sleeve
travel mm : 3.16
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.97
Tolerance mm : \pm 0.25

Rated speed rpm : 1630
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1420

Rack travel in mm : 13.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 277.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 299.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1320
Tolerance 1/min : \pm 5

rack travel mm : -10.40
Rated speed rpm : 1475
Tolerance 1/min : \pm 15

rack travel mm : -13.90
Tolerance mm : \pm 0.50

Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 254.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.90
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -7.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 800
rack travel mm : -0.85
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -4.30
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1600
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1000
rack travel mm : -4.40
Tolerance mm : \pm 0.20

Rated speed rpm : 1000

Pressure hPa : 240
rack travel mm : -3.60
Tolerance mm : \pm 0.20

Pressure hPa : 480
rack travel mm : -1.60
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 179.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1320
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.90
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113
Combination No. : 0 403 446 317
Injection pump
Pump designation : PES6MW100/32ORS1214
: -1
EP type number : 0 413 406 224
Governor
Governor design. : RQV275...1250MW115K
Governor no. : 0 420 083 994
Cust. part No. :

Customer-spec. information

Customer : RVI
Motor : MIDR 060226 W
Power KW : 151.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

C01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0

Prestroke mm : 4.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 18.00
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.15
Tolerance mm : + 0.05
Tolerance mm : + 0.05

Del. quantity
cm3/1000 strokes : 117.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 275

Rack travel in mm : -8.10
Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 21.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spreed
Tolerance

cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.00
Tolerance mm : + 0.25

Rated speed rpm : 1344
guide sleeve
travel mm : 9.99
Tolerance mm : + 0.25

Rated speed rpm : 924
guide sleeve
travel mm : 6.77
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 2.39
Tolerance mm : + 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.25

Rated speed rpm : 550

guide sleeve
travel mm : 3.92
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1360

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 117.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed
Tolerance

cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 293.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1310
Tolerance 1/min : + 15

rack travel mm : -10.10
Rated speed rpm : 1470
Tolerance 1/min : + 5

rack travel mm : -13.60
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 244.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -8.10
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ -7.50

TORQUE CONTROL

Rated speed rpm : 1250
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -0.80
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -3.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1250

Pressure hPa : 200
rack travel mm : -2.35
Tolerance mm : \pm 0.15

Pressure hPa : 300
rack travel mm : -1.75

Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 170
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1310
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -8.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113

Combination No. : 0 403 446 318

Injection pump
Pump designation : PES6MW100/320RS1214
: -1
EP type number : 0 413 406 224

Governor
Governor design. : RQV275...1250MW115
: -1K
Governor no. : 0 420 083 992

Cust. part No. :

Customer-spec. information
Customer : RVI
Motor : MIDR 060226 V
Power KW : 129.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 18.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.15
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 112.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 275

Rack travel in mm : -7.50
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.00
Tolerance mm : + 0.25

Rated speed rpm : 1314
guide sleeve
travel mm : 9.71
Tolerance mm : + 0.25

Rated speed rpm : 912
guide sleeve
travel mm : 6.70
Tolerance mm : + 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 2.39
Tolerance mm : + 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 2.90
Tolerance mm : + 0.25

Rated speed rpm : 560

guide sleeve
travel mm : 4.01
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1460

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 112.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 292.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1300
Tolerance 1/min : + 15

rack travel mm : -9.10
Rated speed rpm : 1455
Tolerance 1/min : + 5

rack travel mm : -12.60
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 242.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.50
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $<$ -6.90

TORQUE CONTROL

Rated speed rpm : 1250
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -0.90
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -2.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1250

Pressure hPa : 120
rack travel mm : -1.50
Tolerance mm : \pm 0.15

Pressure hPa : 240
rack travel mm : -0.50

Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 170
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 112.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000s. : \pm 7.5

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1300
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113
Combination No. : 0 403 446 319
Injection pump
Pump designation : PES6MW100/32ORS1216
: -1
EP type number : 0 413 406 223
Governor
Governor design. : RQV275...1250MW124K
Governor no. : 0 420 083 989
Cust. part No. :

Customer-spec. information

Customer : RVI
Motor : MIDR 060226 U
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 033
Inlet press. bar : 2.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

C09

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 13.25
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 275

Rack travel in mm : -7.20
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1344
guide sleeve
travel mm : 9.99
Tolerance mm : \pm 0.25

Rated speed rpm : 924
guide sleeve
travel mm : 6.77
Tolerance mm : \pm 0.25

Rated speed rpm : 390
guide sleeve
travel mm : 2.39
Tolerance mm : \pm 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.01
Tolerance mm : \pm 0.25

Rated speed rpm : 550

guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1460

Rack travel in mm : 10.00
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 292.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1305
Tolerance 1/min : \pm 15

rack travel mm : -9.25
Rated speed rpm : 1460
Tolerance 1/min : \pm 5

rack travel mm : -12.70
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.20
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm min. : $>$ -6.60

TORQUE CONTROL

Rated speed rpm : 1250
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -1.35
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -2.40
Tolerance mm : \pm 0.40

START CUT-OUT

Rated speed rpm : $>$ 150
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 130
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.5

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1305
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.94
Test oil : ISO 4113

Combination No. : 0 403 456 122

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190

Governor
Governor design. : RQ250/1200MW84-13
Governor no. : 0 420 082 068

Cust. part No. : 3-7239

Customer-spec. information

Customer : MAN
Motor : D 0826 LF08
Power KW : 169.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
 cm3/1000S. : 7.5
 Rated speed rpm : 250
 Rack travel in mm : 5.50
 Tolerance mm : \pm 0.20
 Del. quantity
 cm3/1000 strokes : 18.0
 Tolerance
 cm3/1000 strokes : \pm 2.0
 Check tolerance
 cm3/1000S. : \pm 4.5
 Speed
 Tolerance
 cm3/1000 strokes : 3.5
 Check tolerance
 cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
 guide sleeve
 travel mm : 1.66
 Tolerance mm : \pm 0.10
 Rated speed rpm : 1257
 guide sleeve
 travel mm : 7.61
 Tolerance mm : \pm 0.10
 Rated speed rpm : 1200
 guide sleeve
 travel mm : 7.30
 Tolerance mm : \pm 0.10
 Rated speed rpm : 912
 guide sleeve
 travel mm : 7.08
 Tolerance mm : \pm 0.10
 Rated speed rpm : 359
 guide sleeve
 travel mm : 3.70
 Tolerance mm : \pm 0.10
 Rated speed rpm : 520
 guide sleeve
 travel mm : 7.00
 Tolerance mm : \pm 0.10
 Rated speed rpm : 1380
 guide sleeve
 travel mm : 11.50

Tolerance mm : \pm 0.50
 Rated speed rpm : 1059
 guide sleeve
 travel mm : 7.23
 Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 15.50
 Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 142.0
 Tolerance
 cm3/1000 strokes : \pm 1.0
 Check tolerance
 cm3/1000S. : \pm 4.0
 Speed
 Tolerance
 cm3/1000 strokes : 4.0
 Check tolerance
 cm3/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 102.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.30
 Rated speed rpm : 1253
 Tolerance 1/min : \pm 8
 rack travel mm : 4.00
 Rated speed rpm : 1315
 Tolerance 1/min : \pm 15
 rack travel mm : 0.50
 Tolerance mm : \pm 0.50
 Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 150

CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1200
rack travel mm : 12.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.80
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.35
Tolerance mm : \pm 0.15

Pressure hPa : 150

rack travel mm : 10.65
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 139.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1253
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 5.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Combination No. : 0 402 076 790
Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780
Governor
Governor design. : RSV400...1100P2A599
: -5
Governor no. : 0 421 833 525
Cust. part No. : RE66242

Customer-spec. information
Customer : DEERE
Motor : 6081TF001
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

C17

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 127.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed
Tolerance

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 1.0

C18

Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.20
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 210
rack travel mm : 9.80
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100

Check
speed 1/min : $>$ 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Combination No. : 0 402 076 791
Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV400...1100P2A599
: -6
Governor no. : 0 421 833 526

Cust. part No. : RE66241

Customer-spec. information
Customer : DEERE
Motor : 6081TF001
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference °CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 127.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 127.0

C21

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 6.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.20

Testing:

Rated speed rpm : 400
rack travel mm : 5.70
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.25

Tolerance mm : \pm 0.05
Rated speed rpm : 700
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.20
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 210
rack travel mm : 9.80
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100

Check
speed 1/min : $>$ 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.01.96
Test oil : ISO 4113
Combination No. : 0 402 746 652
Injection pump
Pump designation : PES6P120A320RS7372
EP type number : 0 412 726 940
Governor
Governor design. : RQV250...1500PA1222K
Governor no. : 0 421 815 466

Cust. part No. : 3897621

Customer-spec. information

Customer : CDC
Motor : 6BTA
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 086
Inlet press. bar : 2.0
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.75

Start of delivery blocking

°NW after s.o.d. : 12.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 13.75
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 212.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.00
Tolerance mm : ± 0.20

Rated speed rpm : 1570
guide sleeve
travel mm : 9.90
Tolerance mm : ± 0.15

Rated speed rpm : 986
guide sleeve
travel mm : 5.80
Tolerance mm : ± 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.00
Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 212.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.5
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 12.70
Rated speed rpm : 1550
Tolerance 1/min : ± 5

rack travel mm : 5.20
Rated speed rpm : 1680
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1760

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 275
rack travel mm : 6.70
Tolerance mm : ± 0.20

Rated speed rpm : 200

CRT mm min. : > 8.00

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1500
rack travel mm : 13.75
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1500
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1500
rack travel mm : 9.60
Tolerance mm : \pm 0.20

Rated speed rpm : 1500

Pressure hPa : 800
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Pressure hPa : 410
rack travel mm : 10.50
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 200

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 185.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

BREAKAWAY

Rack travel in mm : 12.70
Rated speed rpm : 1550
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 402 776 829

Injection pump
Pump designation : PES6P120A720RS7399
EP type number : 0 412 726 951

Governor
Governor design. : RSV475...1050POA547
: -11
Governor no. : 0 421 833 510

Cust. part No. : RE65509

Customer-spec. information
Customer : DEERE
Motor : 6101 AT012
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 238.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 2300

Del. quantity
cm³/1000 strokes : 238.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.65
Rated speed rpm : 1130
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.50

Testing:

Rated speed rpm : 475
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.65
Tolerance mm : ± 0.05

Rated speed rpm : 750

rack travel mm : 14.95
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2300

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 1470
rack travel mm : 13.90
Tolerance mm : \pm 0.20

Pressure hPa : 670
rack travel mm : 11.90
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2300
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 293.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.65

D01

Rated speed rpm : 1130
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 402 796 821

Injection pump
Pump designation : PES6P120A720RS7407
EP type number : 0 412 726 955

Governor
Governor design. : RE30
Governor no. : 0 421 890 017

Cust. part No. : RE 67492

Customer-spec. information
Customer : DEERE
Motor : 6101HZ013
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Rack travel in mm : 10.50
Tolerance mm : ± 0.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.25
Tolerance : ± 0.50

Check
 tolerance °NW : + 0.75
 Barrel no. : 1
 Beginning of delivery difference
 and maximum rack
 travel : 15.00
 Difference ° CS : 3.75

(B) POSITIONER TESTING
 Warm-up time: 3 minutes at
 n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0
 Setting point
 (P, R and H pump)
 Uact V : 3.100
 CRT mm : 13.00
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (P, R and H pump)

Uact V : 1.700
 CRT mm : 6.15
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.30

Setting point
 (M pump)

Uact V : 3.100
 CRT mm : 12.50
 Tolerance mm : +/- 0.05
 Check
 tolerance mm : +/- 0.10

Check value
 (M pump)

Uact V : 1.700
 CRT mm : 5.50
 Tolerance mm : +/- 0.25
 Check

tolerance mm : +/- 0.30

Stop position

Uact V : Value with
 deenergised adjusting magnet
 and control rod in
 stop position.

CRT mm : 0.75
 Tolerance mm : +/- 0.25
 Check
 tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
 (All P and R pumps not
 H and M pumps)

Test with control rod
 in stop position

Engine speed min-1: 60
 Amplitude V : 1.4
 Tolerance V : +/- 0.6
 Check
 tolerance V : +/- 1.20

Engine speed min-1: 600
 Difference
 Amplitude to
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
 Uact V : 3.030
 Del. quantity
 cm3/1000 strokes : 213.0
 Tolerance
 cm3/1000 strokes : + 1.0
 Check tolerance
 cm3/1000S. : + 4.0
 Speed
 Tolerance
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
 Uact V : 3.120
 Del. quantity
 cm3/1000 strokes : 237.0
 Tolerance
 cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : +- 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450
Uact V : 1.740
Tolerance Volt : +- 0.060
Check tolerance
Volt : +- 0.060
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : +- 3.0
Spreed
Tolerance
cm3/1000 strokes : +- 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.550
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : +- 20.0
Check tolerance
cm3/1000S. : +- 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113

Combination No. : 0 400 074 893

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF360/2000M70-6
Governor no. : 0 420 021 152

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM601-D23 A,S,CH
Power KW : 60.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

D05

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 335

Rack travel in mm : 5.20

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : \pm 0.5

Speed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Speed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.25
Rated speed rpm : 2200

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 13.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring
Rated speed rpm : 335
rack travel mm : 5.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 4.00
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 600
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250
CRT mm min. : $>$ 7.50

Rated speed rpm : 1000
CRT mm max. : 1.45

rack travel mm : 5.20
Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 12.35
Tolerance mm : \pm 0.15

Rated speed rpm : 2000
rack travel mm : 11.55
Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.15
 Tolerance mm : \pm 0.15
 Rated speed rpm : 800
 rack travel mm : 12.55
 Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 40.8
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm³/1000 strokes : 41.0
 Tolerance
 cm³/1000 strokes : \pm 1.0

Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 36.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 39.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm³/1000 strokes : 52.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 13.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 13.0
tolerance degree : ± 2.0
Rated speed rpm : 360

Rack travel in mm : 13.00
Tolerance mm : ± 0.70
Tolerance
cm³/1000 strokes : ± 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 335

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113

Combination No. : 0 400 074 894

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF375/1900M69-6
Governor no. : 0 420 021 150

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601-D23 A,S,CH
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

D09

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 5.10

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : \pm 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spread
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.25

Rated speed rpm : 2100

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 13.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.10

SET IDLE AUXILIARY SPRING

Rated speed rpm : 420

rack travel mm : 4.00

Tolerance mm : \pm 0.10

rack travel mm : 3.00

Rated speed rpm : 500

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.85

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 12.35

Tolerance mm : \pm 0.15

Rated speed rpm : 1900

rack travel mm : 11.55

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.15
 Tolerance mm : + 0.15
 Rated speed rpm : 800
 rack travel mm : 12.55
 Tolerance mm : + 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.20
 Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : + 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm3/1000 strokes : 40.8
 Tolerance
 cm3/1000 strokes : + 0.8
 Check tolerance
 cm3/1000S. : + 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1900
 Spreed
 Del. quantity
 cm3/1000 strokes : 40.5
 Tolerance
 cm3/1000 strokes : + 1.0

Check tolerance
 cm3/1000S. : + 2.0
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 39.3
 Tolerance
 cm3/1000 strokes : + 0.8
 Check tolerance
 cm3/1000S. : + 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 36.3
 Tolerance
 cm3/1000 strokes : + 0.8
 Check tolerance
 cm3/1000S. : + 1.8
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm3/1000 strokes : 52.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 13.0
tolerance degree : ± 2.0

Rated speed rpm : 425

Rack travel in mm : 7.40
Tolerance mm : ± 0.80
Tolerance
cm³/1000 strokes : ± 3.5
Check tolerance
cm³/1000S. : ± 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 13.0
tolerance degree : ± 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.02.96
Test oil : ISO 4113
Combination No. : 0 400 074 897
Injection pump
Pump designation : PES4M55C320RS172
EP type number : 0 410 054 958
Governor
Governor design. : RSF360/2300M60-25
Governor no. : 0 420 021 132

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-Abgl. MJ90
Power KW : 53.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 335

Rack travel in mm : 6.50
Tolerance mm : + 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : + 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.40
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : + 2.0

Setting point w/out bumper spring

Rated speed rpm : 335
rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : + 0.10

rack travel mm : 2.50
Rated speed rpm : 680
Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 9.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.60
Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : + 0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : + 0.10

Rated speed rpm : 2200
rack travel mm : 11.20
Tolerance mm : + 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 34.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 360

Rack travel in mm : 13.70
Tolerance mm : \pm 0.70
Tolerance
cm3/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 335

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113

Combination No. : 0 400 074 899

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF375/1700M69-4
Governor no. : 0 420 021 139

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601-2.3L
Power kW : 49.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 37.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 5.60

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : \pm 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.25
Rated speed rpm : 1800

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2300

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 420
rack travel mm : 4.50
Tolerance mm : \pm 0.10

rack travel mm : 3.00
Rated speed rpm : 630
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250
CRT mm min. : $>$ 10.20

Rated speed rpm : 1000
CRT mm max. : 1.45

rack travel mm : 5.60
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 11.85
Tolerance mm : \pm 0.15

Rated speed rpm : 1650
rack travel mm : 11.55
Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 11.75
 Tolerance mm : \pm 0.15
 Rated speed rpm : 800
 rack travel mm : 12.15
 Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 37.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1650
 Spreed
 Del. quantity
 cm³/1000 strokes : 38.0
 Tolerance
 cm³/1000 strokes : \pm 1.0

Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 33.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 35.8
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm³/1000 strokes : 52.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 7.80
Tolerance mm : \pm 0.80
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Combination No. : 0 400 074 904
Injection pump
Pump designation : PES4M55C320RS169
EP type number : 0 410 054 959
Governor
Governor design. : RSF375/2300M56-6
Governor no. : 0 420 021 110

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-ECE
Power KW : 53.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 33.5

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 1.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : ± 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

Setting point w/out bumper spring
Rated speed rpm : 375
rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.40
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 710
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250
CRT mm min. : > 11.00

Rated speed rpm : 1000
CRT mm max. : 1.25

rack travel mm : 6.50
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : ± 0.10

Rated speed rpm : 2300
rack travel mm : 11.50
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 33.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2300
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 9.00
Tolerance mm : \pm 0.80
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Combination No. : 0 400 074 905
Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960
Governor
Governor design. : RSF375/1900M69-1
Governor no. : 0 420 021 102

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601-2.3L
Power KW : 58.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 5.10

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : ± 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spread
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.30
Rated speed rpm : 2100

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 13.0
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.10

SET IDLE AUXILIARY SPRING

Rated speed rpm : 420

rack travel mm : 4.00

Tolerance mm : ± 0.10

rack travel mm : 3.00

Rated speed rpm : 530

Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.85
Tolerance mm : ± 0.05

Rated speed rpm : 1400
rack travel mm : 12.35
Tolerance mm : ± 0.15

Rated speed rpm : 1900
rack travel mm : 11.55
Tolerance mm : ± 0.15

Rated speed rpm : 500
rack travel mm : 12.15
Tolerance mm : ± 0.15

Rated speed rpm : 800
rack travel mm : 12.55
Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 40.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 40.3
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 39.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 36.6
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : \pm 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 13.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 7.50
Tolerance mm : \pm 0.80
Del. quantity
cm3/1000 strokes : 17.5
Tolerance
cm3/1000 strokes : \pm 3.5
Check tolerance
cm3/1000S. : \pm 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 13.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113

Combination No. : 0 400 074 907

Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960

Governor
Governor design. : RSF360/2000M70
Governor no. : 0 420 021 105

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601-2.3L
Power kW : 60.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 335

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 strokes : \pm 0.5

Spread
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 41.5
Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 1.5

Spread
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.25
Rated speed rpm : 2200

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 13.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 335
rack travel mm : 5.20

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 4.00
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 600
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 7.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.20
Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 12.35
Tolerance mm : \pm 0.15

Rated speed rpm : 2000
rack travel mm : 11.55
Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.15
 Tolerance mm : \pm 0.15
 Rated speed rpm : 800
 rack travel mm : 12.55
 Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 40.8
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm³/1000 strokes : 40.3
 Tolerance
 cm³/1000 strokes : \pm 1.0

Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 36.6
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 39.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : $>$ 20.10
 Del. quantity
 cm³/1000 strokes : 52.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 13.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 13.0
tolerance degree : ± 2.0
Rated speed rpm : 360

Rack travel in mm : 13.00
Tolerance mm : ± 0.70
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 335

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113

Combination No. : 0 402 044 700

Injection pump
Pump designation : PES4P110A320RS3350
EP type number : 0 412 014 700

Governor
Governor design. : RQV350...1400PA1221K
Governor no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M
: -2004

Customer-spec. information

Customer : NMI
Motor : B4.40 EURO II
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

*NW after s.o.d. : 180.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 178.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 9.10
Tolerance mm : + 0.30

Del. quantity
cm3/1000 strokes : 31.0

Tolerance
cm3/1000 strokes : + 2.5

Check tolerance
cm3/1000S. : + 5.0

Spread
Tolerance
cm3/1000 strokes : 6.0

Check tolerance
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.46
Tolerance mm : + 0.20

Rated speed rpm : 1417
guide sleeve
travel mm : 9.99
Tolerance mm : + 0.15

Rated speed rpm : 994
guide sleeve
travel mm : 6.77
Tolerance mm : + 0.25

Rated speed rpm : 610
guide sleeve
travel mm : 3.96
Tolerance mm : + 0.25

Rated speed rpm : 1730
guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1515

Rack travel in mm : 14.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1500

Del. quantity
cm3/1000 strokes : 178.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : + 4.0

control lever
position degree : 122.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.40
Rated speed rpm : 1410
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1585
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1640

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

control lever
position degree : 26.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 250
CRT mm min. : $>$ 10.40
Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 15.40
Tolerance mm : \pm 0.05

Rated speed rpm : 780
rack travel mm : 13.70
Tolerance mm : \pm 0.15

Rated speed rpm : 1000
rack travel mm : 14.30
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
rack travel mm : 15.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500
rack travel mm : 15.40
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 12.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1300

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Pressure hPa : 660
rack travel mm : 14.30
Tolerance mm : \pm 0.10

Pressure hPa : 520
rack travel mm : 13.10
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $>$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $>$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 780
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 14.40
Rated speed rpm : 1410
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 9.10
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113

Combination No. : 0 402 046 870

Injection pump
Pump designation : PES6P120A32ORS3303
: -1
EP type number : 0 412 026 782

Governor
Governor design. : RQV275...1050PA1038
: -1K
Governor no. : 0 421 815 478

Cust. part No. : CCEP-5129D 66-195

Customer-spec. information
Customer : RVI
Motor : MIDR 062045 J/3
Power KW : 168.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 115
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.18
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -5.30
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.29
Tolerance mm : \pm 0.20

Rated speed rpm : 1143
guide sleeve
travel mm : 9.05
Tolerance mm : \pm 0.15

Rated speed rpm : 742
guide sleeve
travel mm : 6.16
Tolerance mm : \pm 0.25

Rated speed rpm : 337

guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.25

Rated speed rpm : 387
guide sleeve
travel mm : 3.12
Tolerance mm : \pm 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.94
Tolerance mm : \pm 0.25

Rated speed rpm : 1530
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1350

Rack travel in mm : 9.30
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 294.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1110
Tolerance 1/min : \pm 5

rack travel mm : -6.30
Rated speed rpm : 1220
Tolerance 1/min : \pm 15

rack travel mm : -10.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

control lever
position degree : 19.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -5.30
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm max. : $<$ -4.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 700
rack travel mm : -1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -1.50
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $>$ 165
Rated speed rpm : $<$ 235

Check
speed 1/min : $>$ 145
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -5.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.96
Test oil : ISO 4113
Combination No. : 0 402 046 877
Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772
Governor
Governor design. : RQV300...1250PA1149
: -2K
Governor no. : 0 421 815 504
Cust. part No. : CCEP 5158 66-218

Customer-spec. information
Customer : RVI
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 13.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50
Start of delivery mark
°NW after s.o.d. : -0.35
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : ± 0.20

Rated speed rpm : 1311
guide sleeve
travel mm : 9.80
Tolerance mm : ± 0.15

Rated speed rpm : 868
guide sleeve
travel mm : 5.97
Tolerance mm : ± 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : ± 0.25

Rated speed rpm : 1600

guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 11.60
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 293.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1296
Tolerance 1/min : ± 5

rack travel mm : -8.60
Rated speed rpm : 1425
Tolerance 1/min : ± 15

rack travel mm : -12.10
Tolerance mm : ± 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 241.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $<$ 7.30
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250
Rated speed rpm : 850
rack travel mm : -1.75
Tolerance mm : \pm 0.15
Rated speed rpm : 350
rack travel mm : -2.20
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1000

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : -2.00
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
Pressure hPa : 280
rack travel mm : -1.20
Tolerance mm : \pm 0.10

Pressure hPa : 360
rack travel mm : -0.60
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 165
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 145
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 124.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1296
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113

Combination No. : 0 402 066 708

Injection pump
Pump designation : PES6P120A120RS3358
EP type number : 0 412 026 784

Governor
Governor design. : RSV475...1150P2A619
Governor no. : 0 421 833 522

Cust. part No. : 3283019

Customer-spec. information
Customer : CDC
Motor : 6BTA-590 ELITE
Power KW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. L/h : 100
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

°NW after s.o.d. : 6.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.80

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 151.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.40
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 151.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.80
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1290
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.70
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 900
rack travel mm : 11.35
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 10.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.80
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
rack travel mm : 5.40
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113
Combination No. : 0 402 648 981
Injection pump
Pump designation : PE8P120A320LS7839
: -10
EP type number : 0 412 628 855
Governor
Governor design. : RQ300/950PA971-10
Governor no. : 0 421 801 754

Cust. part No. : 0250749002

Customer-spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 14.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 289.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.72
Tolerance mm : + 0.20

Rated speed rpm : 1005
guide sleeve
travel mm : 6.34
Tolerance mm : + 0.15

Rated speed rpm : 950
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 374
guide sleeve
travel mm : 3.81
Tolerance mm : + 0.10

Rated speed rpm : 580
guide sleeve
travel mm : 6.00

Tolerance mm : + 0.10

Rated speed rpm : 1190
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 289.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 14.20
Rated speed rpm : 998
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1100
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 370
Tolerance 1/min : \pm 20

Rated speed rpm : 200

CRT mm min. : $>$ 7.20

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 15.20
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 15.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1200
rack travel mm : 15.20
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 8.25
Tolerance mm : \pm 0.15

Rated speed rpm : 400

Pressure hPa : 300
rack travel mm : 9.95
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 11.65
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 271.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 136.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

BREAKAWAY

Rack travel in mm : 14.20
Rated speed rpm : 998
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96

Test oil : ISO 4113

Combination No. : 0 402 744 801

Injection pump

Pump designation : PES4P120A320RS7380

EP type number : 0 412 724 802

Governor

Governer design. : RQV275...1200PA1232K

Governer no. : 0 421 815 469

Cust. part No. : CCEP 5149B 66-237

Customer-spec. information

Customer : RVI

Motor : MIDR 04-02-26 B4

Power kW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 95

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.30

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.70

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 236.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.60
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : ± 0.20

Rated speed rpm : 1272
guide sleeve
travel mm : 9.31
Tolerance mm : ± 0.15

Rated speed rpm : 894
guide sleeve
travel mm : 6.60
Tolerance mm : ± 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : ± 0.25

Rated speed rpm : 1650

guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1482

Rack travel in mm : 11.70
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 236.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1280
Tolerance 1/min : ± 15

rack travel mm : -8.70
Rated speed rpm : 1420
Tolerance 1/min : ± 5

rack travel mm : -12.20
Tolerance mm : ± 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 253.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -6.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $<$ -4.60
Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
Rated speed rpm : 700
rack travel mm : -1.15
Tolerance mm : \pm 0.10
Rated speed rpm : 350
rack travel mm : -2.90
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -4.00
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -3.40
Tolerance mm : \pm 0.20

Pressure hPa : 440
rack travel mm : -2.75
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 130
Rated speed rpm : $<$ 275

Check
speed 1/min : $>$ 110
Check
speed 1/min : $<$ 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 237.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1280
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
rack travel mm : -6.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.96
Test oil : ISO 4113
Combination No. : 0 402 744 802
Injection pump
Pump designation : PES4P120A32ORS7312
EP type number : 0 412 724 803
Governor
Governor design. : RQ400/1200PA1132-1
Governor no. : 0 421 801 794
Cust. part No. : 51.11103-7469

Customer-spec. information

Customer : MAN
Motor : D0824LFLO6/LOH05
Power KW : 114.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.30

Check
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 72.0

Tolerance
cm³/1000 strokes : ± 5.0

Check tolerance
cm³/1000S. : ± 8.0

Spreed
 Tolerance
 cm3/1000 strokes : 3.0
 Check tolerance
 cm3/1000S. : 6.0
 Rated speed rpm : 1000

 Rack travel in mm : 13.05
 Tolerance mm : \pm 0.05

 Del. quantity
 cm3/1000 strokes : 206.0

 Tolerance
 cm3/1000 strokes : \pm 1.0

 Check tolerance
 cm3/1000S. : \pm 4.0

 Spreed
 Tolerance
 cm3/1000 strokes : 8.0

 Check tolerance
 cm3/1000S. : 12.0
 Rated speed rpm : 400
 Rack travel in mm : 4.80
 Tolerance mm : \pm 0.20
 Del. quantity
 cm3/1000 strokes : 40.0
 Tolerance
 cm3/1000 strokes : \pm 3.0
 Check tolerance
 cm3/1000S. : \pm 6.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 400
 guide sleeve
 travel mm : 3.62
 Tolerance mm : \pm 0.20
 Rated speed rpm : 1258

F01

guide sleeve
 travel mm : 7.48
 Tolerance mm : \pm 0.15
 Rated speed rpm : 1200
 guide sleeve
 travel mm : 7.00
 Tolerance mm : \pm 0.10
 Rated speed rpm : 472
 guide sleeve
 travel mm : 5.36
 Tolerance mm : \pm 0.10
 Rated speed rpm : 580
 guide sleeve
 travel mm : 7.00
 Tolerance mm : \pm 0.10
 Rated speed rpm : 1390
 guide sleeve
 travel mm : 11.50
 Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 600
 Rack travel in mm : 20.00
 Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 1200
 Del. quantity
 cm3/1000 strokes : 206.0
 Tolerance
 cm3/1000 strokes : \pm 1.0
 Check tolerance
 cm3/1000S. : \pm 4.0
 Spreed
 Tolerance
 cm3/1000 strokes : 8.0
 Check tolerance
 cm3/1000S. : 12.0

CONTROL LEVER

control lever
 position degree : 101.0
 tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1335
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : + 20

Rated speed rpm : 300

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 1200
rack travel mm : 13.05
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.05

Tolerance mm : + 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 7.65
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : 8.55
Tolerance mm : + 0.15

Pressure hPa : 500
rack travel mm : 11.85
Tolerance mm : + 0.25

START CUT-OUT

Rated speed rpm : < 280
Rated speed rpm : > 320

Check
speed 1/min : < 260
Check
speed 1/min : > 340

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : + 8

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 21.02.96

Test oil : ISO 4113

Combination No. : 0 402 746 607

Injection pump

Pump designation : PES6P120A720RS7409

EP type number : 0 412 726 956

Governor

Governer design. : RQV450...1100PA1270

Governer no. : 0 421 814 172

Cust. part No. :

Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8465.41.014

Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 1 688 901 105

Opening pressure
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.15

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Check

tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.90

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 168.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.30
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 450
guide sleeve
travel mm : 2.71
Tolerance mm : + 0.20

Rated speed rpm : 1164
guide sleeve
travel mm : 7.81
Tolerance mm : + 0.15

Rated speed rpm : 856
guide sleeve
travel mm : 5.85
Tolerance mm : + 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.81
Tolerance mm : + 0.25

Rated speed rpm : 1550
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

F05

GUIDE SLEEVE POSITION

Rated speed rpm : 1400

Rack travel in mm : 8.40
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 168.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.90
Rated speed rpm : 1150
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 450
rack travel mm : 4.30
Tolerance mm : \pm 0.10

Rated speed rpm : 350
CRT mm min. : $>$ 5.80
Rated speed rpm : 430

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 10.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 900
rack travel mm : 10.90
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 10.00
Tolerance mm : \pm 0.15

Rated speed rpm : 700

Pressure hPa : 400
rack travel mm : 10.65
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 9.90
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 450
rack travel mm : 4.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113

Combination No. : 0 402 746 610

Injection pump
Pump designation : PES6P120A720RS7409
EP type number : 0 412 726 956

Governor
Governor design. : RQV450...1050PA1277
Governor no. : 0 421 814 173

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8465.41.016
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 184.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.60
Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : + 3.0

Check tolerance
cm3/1000S. : + 6.0

Spread
Tolerance
cm3/1000 strokes : 8.0

Check tolerance
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 450
guide sleeve
travel mm : 2.71
Tolerance mm : + 0.20

Rated speed rpm : 1110
guide sleeve
travel mm : 7.40
Tolerance mm : + 0.10

Rated speed rpm : 836
guide sleeve
travel mm : 5.75
Tolerance mm : + 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.81
Tolerance mm : + 0.25

Rated speed rpm : 1550
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1375

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 184.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 450
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 350
CRT mm min. : $>$ 6.10
Rated speed rpm : 440

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 11.55
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 600
rack travel mm : 10.75
Tolerance mm : \pm 0.15

Rated speed rpm : 600
Pressure hPa : 340
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Pressure hPa : 360
rack travel mm : 11.30
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 203.0

F09

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 450
rack travel mm : 4.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.02.96
Test oil : ISO 4113

Combination No. : 0 402 746 653

Injection pump
Pump designation : PES6P120A720LS7209
: -3
EP type number : 0 412 726 941

Governor
Governor design. : RQV300...1100PA1006
: -2K
Governor no. : 0 421 815 467

Cust. part No. : 51.11103-7424

Customer-spec. information

Customer : MAN
Motor : D 2866 LE 402
Power KW : 368.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 175
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

F11

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : ± 5.0

Check tolerance
cm³/1000s. : ± 8.0

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 1100

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 315.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.67
Tolerance mm : ± 0.25

Rated speed rpm : 1156

guide sleeve

travel mm : 9.74
Tolerance mm : ± 0.25

Rated speed rpm : 842
guide sleeve
travel mm : 6.78
Tolerance mm : ± 0.25

Rated speed rpm : 326
guide sleeve
travel mm : 1.94
Tolerance mm : ± 0.25

Rated speed rpm : 376
guide sleeve
travel mm : 2.46
Tolerance mm : ± 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.57
Tolerance mm : ± 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1270

Rack travel in mm : 13.80
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 2000

Del. quantity
cm³/1000 strokes : 315.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.80
Rated speed rpm : 1145
Tolerance 1/min : \pm 8

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 6.70

Rated speed rpm : 326

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 2000
rack travel mm : 14.80
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 9.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1100

Pressure hPa : 250
rack travel mm : 9.65
Tolerance mm : \pm 0.05

Pressure hPa : 1000
rack travel mm : 13.30
Tolerance mm : \pm 0.15

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2000
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 2000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 305.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 13.80
Rated speed rpm : 1145
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.02.96
Test oil : ISO 4113
Combination No. : 0 402 946 010
Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021
Governor
Governor design. : RQV275...1175PA1101K
Governor no. : 0 421 815 982

Cust. part No. : CCEP 5133 A 66-193

Customer-spec. information
Customer : RVI
Motor : MIDR 060226 M51
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 12.30
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 13.70
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 268.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.30
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 42.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 275
guide sleeve
travel mm : 1.01
Tolerance mm : \pm 0.10

Rated speed rpm : 1230
guide sleeve
travel mm : 8.95
Tolerance mm : \pm 0.10

Rated speed rpm : 877
guide sleeve
travel mm : 6.51
Tolerance mm : \pm 0.20

Rated speed rpm : 389
guide sleeve
travel mm : 2.39
Tolerance mm : \pm 0.20

Rated speed rpm : 439
guide sleeve
travel mm : 3.01
Tolerance mm : \pm 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1430
Rack travel in mm : 11.20
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 268.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

rack travel mm : -9.70
Rated speed rpm : 1430
Tolerance 1/min : + 5

rack travel mm : -13.20
Tolerance mm : + 0.55
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.30
Tolerance mm : + 0.10

Rated speed rpm : 200
CRT mm max. : < -6.40
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1175
Rated speed rpm : 650
rack travel mm : -1.55
Tolerance mm : + 0.10
Rated speed rpm : 350
rack travel mm : -2.80
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1175
Pressure hPa : 1600

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -5.40
Tolerance mm : + 0.20
Rated speed rpm : 1175

F17

Pressure hPa : 320
rack travel mm : -4.70
Tolerance mm : + 0.20

Pressure hPa : 560
rack travel mm : -2.95
Tolerance mm : + 0.05

START CUT-OUT

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1250
Tolerance 1/min : + 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 10.0

Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.30
Tolerance mm : +- 0.20
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.02.96
Test oil : ISO 4113

Combination No. : 0 402 076 796

Injection pump
Pump designation : PES6P120A720RS3352
EP type number : 0 412 026 780

Governor
Governor design. : RSV400...1000P2A638
Governor no. : 0 421 833 547

Cust. part No. : RE66421

Customer-spec. information

Customer : DEERE
Motor : 6081HDW03
Power KW : 123.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 7.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 10.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 118.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : + 1.0

F20

Check tolerance
cm³/1000S. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.80
Rated speed rpm : 1055
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1115
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1120

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.80

Testing:

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.40
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 136.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 9.80
Rated speed rpm : 1055
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 19.5

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.12.95
Test oil : ISO 4113

Combination No. : 0 402 776 830

Injection pump
Pump designation : PES6P120A720RS74Q4
EP type number : 0 412 726 953

Governor
Governor design. : RSV400...1050POA547
: -12
Governor no. : 0 421 833 511

Cust. part No. : RE64861

Customer-spec. information
Customer : DEERE
Motor : 6101 AF010
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference °CS : 2.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 211.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 211.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1280

rack travel mm : 4.00
Rated speed rpm : 1195

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.15

Testing:

Rated speed rpm : 400
rack travel mm : 5.65
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.00
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.30
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 1090
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 620
rack travel mm : 9.40
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 89.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.10.95
Test oil : ISO 4113

Combination No. : 0 402 776 831

Injection pump
Pump designation : PES6P120A72ORS7404
EP type number : 0 412 726 953

Governor
Governor design. : RSV400...1050POA547
: -13
Governor no. : 0 421 833 512

Cust. part No. : RE64817

Customer-spec. information
Customer : DEERE
Motor : 6101 AF010
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

F25

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.70
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 221.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 27.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1700
Del. quantity
cm³/1000 strokes : 221.5
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 96.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1175

LOW IDLE

control lever
position degree : 75.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.30

Testing:

Rated speed rpm : 400
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.70

Tolerance mm : \pm 0.05
Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1700

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 1180
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Pressure hPa : 700
rack travel mm : 10.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 232.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

F27

Rack travel in mm : 11.70
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 27.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.02.96
Test oil : ISO 4113

Combination No. : 9 400 030 730

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C843R
Governor no. : 9 420 034 709

Cust. part No. : 3929406

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 94.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 94.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1165
Tolerance 1/min : ± 5

rack travel mm : 4.50
Rated speed rpm : 1215
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 86.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.60

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.00
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 8.70
Tolerance mm : \pm 0.10

Rated speed rpm : 800

Pressure hPa : 600
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Pressure hPa : 275
rack travel mm : 9.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 107.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 10.20
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 9 400 030 732

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1250AOC845R
Governor no. : 9 420 034 711

Cust. part No. : 3929407

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 98.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G03

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 86.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 6.5

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1300
Tolerance 1/min : ± 5

rack travel mm : 4.50
Rated speed rpm : 1355
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1400

rack travel mm : 4.50
Rated speed rpm : 1365

LOW IDLE

control lever
position degree : 86.5
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.60

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.65
Tolerance mm : ± 0.05

Rated speed rpm : 800

rack travel mm : 11.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 900

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 800
rack travel mm : 8.70
Tolerance mm : \pm 0.10

Rated speed rpm : 800

Pressure hPa : 450
rack travel mm : 10.50
Tolerance mm : \pm 0.20

Pressure hPa : 275
rack travel mm : 9.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 95.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 65.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 9.60

G05

Rated speed rpm : 1300
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 009

Injection pump
Pump designation : PES5M55C320RS176
EP type number : 0 410 055 975

Governor
Governor design. : RSV350...1650MOC353
: -6
Governor no. : 0 420 033 042

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602 (2,9L)
Power KW : 62.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

G06

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1630

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 40.5

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000s. : ± 1.5

Speed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 strokes : ± 1.0
Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1630
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 113.0
rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 2000

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Load pick-up

Rated speed rpm : 100
CRT mm min. : > 20.10
rack travel mm : 5.40
Rated speed rpm : 350

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1630
rack travel mm : 12.15
Tolerance mm : ± 0.05

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : ± 0.10

Rated speed rpm : 1400
rack travel mm : 12.60
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 41.8
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1400
Spreed
Del. quantity
cm³/1000 strokes : 41.0

Tolerance
cm³/1000 strokes : + 0.8
Check tolerance
cm³/1000S. : + 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : + 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 76.0
tolerance degree : + 4.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 76.0
tolerance degree : + 4.0

control lever
position degree : 113.0

ADJUSTMENT

control lever
position degree : 113.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 013

Injection pump
Pump designation : PES5M55C320RS176
EP type number : 0 410 055 975

Governor
Governor design. : RSV400...1800MOC355
Governor no. : 0 420 033 049

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602 D 29
Power KW : 67.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1800

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 41.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : +- 1.0
Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
Rack travel in mm : 0.65
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1800
Ref. pressure
ALDA / ADA hPa : -
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 strokes : +- 0.5
Check tolerance
cm³/1000S. : +- 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 87.0
rack travel mm : 10.80
Tolerance 1/min : +- 5
Rated speed rpm : 1845
rack travel mm : 4.00
Rated speed rpm : 1930
Tolerance 1/min : +- 10
rack travel mm : 1.00
Tolerance mm : +- 0.70
Rated speed rpm : 2250

LOW IDLE

control lever
position degree : 59.0
tolerance degree : +- 4.0

Load pick-up

Rated speed rpm : 100
CRT mm min. : > 20.10
rack travel mm : 5.40
Rated speed rpm : 400

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1800
rack travel mm : 11.85
Tolerance mm : +- 0.05
Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : +- 0.10
Rated speed rpm : 1400
rack travel mm : 12.30
Tolerance mm : +- 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 40.3
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0
Ref. pressure
ALDA / ADA hPa : -

Rated speed rpm : 1400
Spreed
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 strokes : \pm 0.8
Check tolerance
cm3/1000S. : \pm 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

BREAKAWAY

Full load CRT mm : 10.80
Rated speed rpm : 1845
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm3/1000 strokes : 52.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 9.3
Check tolerance
cm3/1000S. : \pm 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 59.0
tolerance degree : \pm 4.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 87.0

ADJUSTMENT

control lever
position degree : 87.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.02.96
 Test oil : ISO 4113
 Combination No. : 0 400 075 931
 Injection pump
 Pump designation : PES5M55C32ORS168
 EP type number : 0 410 055 978
 Governor
 Governor design. : RSF340/2000M70-8
 Governor no. : 0 420 021 154

Cust. part No. :

Customer-spec. information
 Customer : MB-NFZ
 Motor : OM602-D29 A,S,CH
 Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
 temp. °C : 40
 Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
 assembly : 1 688 901 111

Opening pressure
 bar : 148.5
 Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
 x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
 Tolerance bar : ± 1.0

Prestroke mm : 2.05
 Tolerance mm : ± 0.05
 Check
 tolerance mm : ± 0.10

Rack travel in mm : 21.00
 Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
 Tolerance : ± 0.20
 Check
 tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
 Tolerance mm : ± 0.05

Del. quantity
 cm3/1000 strokes : 39.5

Tolerance
 cm3/1000 strokes : ± 0.5

Check tolerance
 cm3/1000S. : ± 1.5

Speed
 Tolerance
 cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 5.40

Tolerance mm : \pm 0.10

Del. quantity

cm3/1000 strokes : 6.5

Tolerance

cm3/1000 strokes : \pm 0.5

Spreed

Tolerance

cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm3/1000 strokes : 39.5

Tolerance

cm3/1000 strokes : \pm 0.5

Check tolerance

cm3/1000S. : \pm 1.5

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.40

Rated speed rpm : 2200

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 5.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380

rack travel mm : 4.10

Tolerance mm : \pm 0.10

rack travel mm : 2.50

Rated speed rpm : 550

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.40

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.55

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 12.25

Tolerance mm : \pm 0.15

Rated speed rpm : 2000

rack travel mm : 11.85

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.30
 Tolerance mm : +- 0.10

Rated speed rpm : 800
 rack travel mm : 12.40
 Tolerance mm : +- 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : +- 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm3/1000 strokes : 39.3
 Tolerance
 cm3/1000 strokes : +- 0.8
 Check tolerance
 cm3/1000S. : +- 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 2000
 Spreed
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 strokes : +- 1.0

Check tolerance
 cm3/1000S. : +- 2.0
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 36.3
 Tolerance
 cm3/1000 strokes : +- 0.8
 Check tolerance
 cm3/1000S. : +- 1.8
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 38.3
 Tolerance
 cm3/1000 strokes : +- 0.8
 Check tolerance
 cm3/1000S. : +- 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm3/1000 strokes : 52.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : ± 2.3
Speed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : ± 2.0
Rated speed rpm : 340

Rack travel in mm : 12.30
Tolerance mm : ± 0.70
Tolerance
cm³/1000 strokes : ± 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 932

Injection pump
Pump designation : PES5M55C32ORS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF340/1900M70-9
Governor no. : 0 420 021 155

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ
Motor : OM602-D29 A,S,CH
Power KW : 70.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 5.40

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : \pm 0.5

Speed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.40

Rated speed rpm : 2100

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 5.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380

rack travel mm : 4.10

Tolerance mm : \pm 0.10

rack travel mm : 2.50

Rated speed rpm : 550

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.40

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.55

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 12.25

Tolerance mm : \pm 0.15

Rated speed rpm : 1900

rack travel mm : 11.85

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.30
 Tolerance mm : \pm 0.10

Rated speed rpm : 800
 rack travel mm : 12.40
 Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 39.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spread
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1900
 Spread
 Del. quantity
 cm³/1000 strokes : 40.5
 Tolerance
 cm³/1000 strokes : \pm 1.0

Check tolerance
 cm³/1000S. : \pm 2.0
 Spread
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 36.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 38.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spread
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm³/1000 strokes : 52.0
 Spread
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 340

Rack travel in mm : 12.30
Tolerance mm : \pm 0.70
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 933

Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF350/1900M69-7
Governor no. : 0 420 021 151

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-D29 A,S,CH
Power KW : 70.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0
Rated speed rpm : 350
Rack travel in mm : 5.30
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 strokes : + 0.5
Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : + 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 39.5
Tolerance
cm3/1000 strokes : + 0.5
Check tolerance
cm3/1000S. : + 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0
rack travel mm : 7.40
Rated speed rpm : 2100
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : + 2.0

Setting point w/out bumper spring
Rated speed rpm : 350
rack travel mm : 5.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380
rack travel mm : 4.30
Tolerance mm : + 0.10
rack travel mm : 3.00
Rated speed rpm : 520
Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 250
CRT mm min. : > 9.20
Rated speed rpm : 1000
CRT mm max. : 1.45
rack travel mm : 5.30
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.55
Tolerance mm : + 0.05

Rated speed rpm : 1400
rack travel mm : 12.25
Tolerance mm : + 0.15

Rated speed rpm : 1900
rack travel mm : 11.85
Tolerance mm : + 0.15

Rated speed rpm : 500
rack travel mm : 12.30
Tolerance mm : + 0.10

Rated speed rpm : 800
 rack travel mm : 12.40
 Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm³/1000 strokes : 39.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1900
 Spreed
 Del. quantity
 cm³/1000 strokes : 40.5
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 2.0
 Spreed

Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 36.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 38.3
 Tolerance
 cm³/1000 strokes : \pm 0.8
 Check tolerance
 cm³/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : > 20.10
 Del. quantity
 cm³/1000 strokes : 52.0
 Spreed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : +- 0.80
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : +- 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.02.96

Test oil : ISO 4113

Combination No. : 0 400 075 938

Injection pump

Pump designation : PES5M55C320RS170

EP type number : 0 410 055 977

Governor

Governer design. : RSF350/2300M71-3

Governer no. : 0 420 021 136

Cust. part No. :

Customer-spec. information

Customer : MB-PKW

Motor : OM602-ECE MJ90

Power KW : 66.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly

: 1 688 901 111

Opening pressure
bar

: 148.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 21.00

Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 19.50

Tolerance : ± 0.20

Check

tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Spread

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 6.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.8

Tolerance
cm³/1000 strokes : \pm 0.5

Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spreed
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 6.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 720
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 10.00

Rated speed rpm : 1000

CRT mm max. : 1.25

rack travel mm : 6.60
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 33.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 400

Rack travel in mm : 7.60
Tolerance mm : \pm 0.15
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

Rated speed rpm : 1000

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 939

Injection pump
Pump designation : PES5M55C320RS173
EP type number : 0 410 055 976

Governor
Governor design. : RSF350/2300M71-2
Governor no. : 0 420 021 135

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-Abgl. MJ90
Power KW : 64.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 6.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : \pm 0.5

Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0
rack travel mm : 9.10
Rated speed rpm : 2500
rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2950

H01

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 670
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 10.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.50
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 35.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

H02

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 49.00

Grad : < 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 400

Rack travel in mm : 7.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

Rated speed rpm : 1000

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 940

Injection pump
Pump designation : PES5M55C320RS173
EP type number : 0 410 055 976

Governor
Governor design. : RSF340/2300M60-26
Governor no. : 0 420 021 133

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-Abgl. MJ90
Power KW : 64.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

H04

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 6.5

Tolerance
cm³/1000 strokes : ± 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.10
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 2950

H05

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380
rack travel mm : 5.30
Tolerance mm : ± 0.10

rack travel mm : 2.50
Rated speed rpm : 650
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : > 8.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.50
Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.45
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : ± 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 35.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 340

Rack travel in mm : 13.70
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113
Combination No. : 0 400 075 941
Injection pump
Pump designation : PES5M55C320RS173
EP type number : 0 410 055 976
Governor
Governor design. : RSF350/2300M56-11
Governor no. : 0 420 021 131

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-Abgl. MJ90
Power KW : 64.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

H08

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 33.0

Tolerance
cm3/1000 strokes : ± 0.5

Check tolerance
cm3/1000S. : ± 1.5

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 6.50

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : \pm 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.10
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2950

H09

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring
Rated speed rpm : 350
rack travel mm : 6.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.30
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 670
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 10.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 6.50
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 35.3
Tolerance
cm3/1000 strokes : \pm 0.8
Check tolerance
cm3/1000S. : \pm 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

H10

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm3/1000 strokes : 52.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : \pm 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 400

Rack travel in mm : 7.40
Tolerance mm : \pm 0.70
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 strokes : \pm 3.5
Check tolerance
cm3/1000S. : \pm 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113
Combination No. : 0 400 075 943
Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978
Governor
Governor design. : RSF350/1700M69-5
Governor no. : 0 420 021 147

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-2.9L
Power KW : 62.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

H12

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 37.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 5.60

Tolerance mm : \pm 0.10

Del. quantity

cm3/1000 strokes : 6.5

Tolerance

cm3/1000 strokes : \pm 0.5

Speed

Tolerance

cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm3/1000 strokes : 37.5

Tolerance

cm3/1000 strokes : \pm 0.5

Check tolerance

cm3/1000S. : \pm 1.5

Speed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

RATED SPEED

control lever

position degree : 50.0

rack travel mm : 9.25

Rated speed rpm : 1800

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2300

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380

rack travel mm : 4.50

Tolerance mm : \pm 0.10

rack travel mm : 3.00

Rated speed rpm : 570

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 9.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.60

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.35

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 11.75

Tolerance mm : \pm 0.15

Rated speed rpm : 1650

rack travel mm : 11.55

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.10

Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.25
Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 37.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1650
Spreed
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 36.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : +- 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 400

Rack travel in mm : 6.40
Tolerance mm : +- 0.80
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : +- 3.5
Check tolerance
cm³/1000S. : +- 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : +- 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 947

Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF340/1900M70-5
Governor no. : 0 420 021 124

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-2.9L
Power KW : 70.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

H16

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 strokes : \pm 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 39.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.25
Rated speed rpm : 2100

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring
Rated speed rpm : 315
rack travel mm : 5.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380
rack travel mm : 4.10
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 550
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.40
Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 12.25
Tolerance mm : \pm 0.15

Rated speed rpm : 1900
rack travel mm : 11.75
Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.30
 Tolerance mm : \pm 0.10
 Rated speed rpm : 800
 rack travel mm : 12.40
 Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 950
 rack travel mm : -0.10
 Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 900
 rack travel mm : -0.60
 Tolerance mm : \pm 0.10

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 750
 rack travel mm : -2.00
 Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1400
 Del. quantity
 cm3/1000 strokes : 39.3
 Tolerance
 cm3/1000 strokes : \pm 0.8
 Check tolerance
 cm3/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 1900
 Spreed
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 strokes : \pm 1.0

Check tolerance
 cm3/1000S. : \pm 2.0
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 36.3
 Tolerance
 cm3/1000 strokes : \pm 0.8
 Check tolerance
 cm3/1000S. : \pm 1.8
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

Ref. pressure
 ALDA / ADA hPa : 1100
 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 38.3
 Tolerance
 cm3/1000 strokes : \pm 0.8
 Check tolerance
 cm3/1000S. : \pm 1.8
 Spreed
 Tolerance
 cm3/1000 strokes : 2.5
 Check tolerance
 cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
 ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : $>$ 20.10
 Del. quantity
 cm3/1000 strokes : 52.0
 Spreed
 Tolerance
 cm3/1000 strokes : 6.0
 Check tolerance
 cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 340

Rack travel in mm : 12.30
Tolerance mm : \pm 0.70
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 951

Injection pump
Pump designation : PES5M55C320RS170
EP type number : 0 410 055 977

Governor
Governor design. : RSF340/2300M60-20
Governor no. : 0 420 021 111

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-ECE
Power KW : 66.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

H2O

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 6.60
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : \pm 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm3/1000 strokes : 33.5

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000S. : \pm 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 6.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 710
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 9.50

Rated speed rpm : 1000

CRT mm max. : 1.25

rack travel mm : 6.60
Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 33.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

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HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 340

Rack travel in mm : 13.10
Tolerance mm : \pm 0.70
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 075 955

Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978

Governor
Governor design. : RSF340/2000M70-2
Governor no. : 0 420 021 107

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-2.9l
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 315

Rack travel in mm : 5.40

Tolerance mm : \pm 0.10

Del. quantity

cm3/1000 strokes : 6.5

Tolerance

cm3/1000 strokes : \pm 0.5

Spreed

Tolerance

cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm3/1000 strokes : 39.5

Tolerance

cm3/1000 strokes : \pm 0.5

Check tolerance

cm3/1000S. : \pm 1.5

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.25

Rated speed rpm : 2200

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 5.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380

rack travel mm : 4.10

Tolerance mm : \pm 0.10

rack travel mm : 2.50

Rated speed rpm : 550

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.40

Rated speed rpm : 315

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.55

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 12.25

Tolerance mm : \pm 0.15

Rated speed rpm : 2000

rack travel mm : 11.75

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.30

Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 39.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2000
Spreed
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 36.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 38.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000s. : ± 2.3
Speed
Check tolerance
cm³/1000s. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : ± 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : ± 2.0
Rated speed rpm : 340

Rack travel in mm : 12.30
Tolerance mm : ± 0.70
Del. quantity
cm³/1000 strokes : 34.5
Tolerance
cm³/1000 strokes : ± 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2500

Rack travel in mm : 0.50
Tolerance mm : ± 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 315

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113
Combination No. : 0 400 075 956
Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978
Governor
Governor design. : RSF350/1900M69-3
Governor no. : 0 420 021 104

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-2.9L
Power KW : 70.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 39.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 6.5

Tolerance

cm³/1000 strokes : \pm 0.5

Spread

Tolerance

cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm³/1000 strokes : 39.5

Tolerance

cm³/1000 strokes : \pm 0.5

Check tolerance

cm³/1000S. : \pm 1.5

Spread

Tolerance

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 7.40

Rated speed rpm : 2100

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2500

SET IDLE CONTROL LEVER POSITION

J01

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 5.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380

rack travel mm : 4.30

Tolerance mm : \pm 0.10

rack travel mm : 3.00

Rated speed rpm : 520

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : $>$ 9.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.30

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.55

Tolerance mm : \pm 0.05

Rated speed rpm : 1400

rack travel mm : 12.25

Tolerance mm : \pm 0.15

Rated speed rpm : 1900

rack travel mm : 11.85

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 12.30

Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 39.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed

Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 36.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 38.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : +- 2.3
Speed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : +- 0.80

Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : +- 3.5
Check tolerance
cm³/1000S. : +- 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : +- 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 962

Injection pump
Pump designation : PES6M55C320RS157
EP type number : 0 410 056 993

Governor
Governor design. : RSF315/2300M64-15
Governor no. : 0 420 021 143

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603A-Abgasl.
Power KW : 110.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J04

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 53.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : + 1.5

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 290

Rack travel in mm : 5.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 strokes : + 0.5
Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : + 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm³/1000 strokes : 53.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 1.5
Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0
rack travel mm : 8.30
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.75

LOW IDLE

control lever
position degree : 10.0
tolerance degree : + 2.0

Setting point w/out bumper spring
Rated speed rpm : 290
rack travel mm : 5.40

SET IDLE AUXILIARY SPRING

Rated speed rpm : 360
rack travel mm : 4.30
Tolerance mm : + 0.10

rack travel mm : 2.50
Rated speed rpm : 560
Tolerance 1/min : + 50

Load pick-up

Rated speed rpm : 200
CRT mm min. : > 7.00

Rated speed rpm : 1000
CRT mm max. : 1.75

rack travel mm : 5.40
Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 1600
rack travel mm : 13.20
Tolerance mm : + 0.10

Rated speed rpm : 2200

rack travel mm : 12.40
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 51.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 35.50

Grad : $<$ 33.00

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.0
tolerance degree : \pm 2.0
Rated speed rpm : 315
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Set quantity with
control lever
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 0.5
Voltage Volt : 1.636
Tolerance Volt : \pm 0.003
Check tolerance
Volt : \pm 0.001

ADJUSTMENT

control lever
position degree : 50.0
Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Rack travel in mm
Voltage Volt : 2.502
Tolerance Volt : \pm 0.030
Check tolerance
Volt : \pm 0.060

J07

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 963

Injection pump
Pump designation : PES6M55C320RS157-1
EP type number : 0 410 056 991

Governor
Governor design. : RSF450/2300M68-1
Governor no. : 0 420 021 141

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM603A (3.0L)
Power KW : 100.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J08

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 48.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 450

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 7.0

Tolerance
cm³/1000 strokes : ± 0.5

Spread
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.60
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.95

LOW IDLE

control lever
position degree : 12.0
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.40
Tolerance mm : ± 0.10

rack travel mm : 2.50
Rated speed rpm : 670
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 12.50

Rated speed rpm : 1000

CRT mm max. : 1.95

rack travel mm : 5.50
Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 1600
rack travel mm : 12.50
Tolerance mm : ± 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1400
rack travel mm : -0.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.45
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm³/1000 strokes : 47.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : \pm 0.5
Check tolerance
cm³/1000S. : \pm 1.5
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 35.50

Grad : $<$ 33.00

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 12.0
tolerance degree : \pm 2.0

Rated speed rpm : 500

Rack travel in mm : 7.60
Tolerance mm : \pm 0.80

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.5

Check tolerance
cm³/1000S. : \pm 4.5

Vacuum hPa : 600.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 12.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 450

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 964

Injection pump
Pump designation : PES6M55C320RS171
EP type number : 0 410 056 989

Governor
Governor design. : RSF315/2300M72-4
Governor no. : 0 420 021 138

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603-ECE MJ90
Power KW : 80.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J12

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 32.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 300

Rack travel in mm : 6.90
Tolerance mm : +- 0.10

Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm3/1000 strokes : +- 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : +- 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm3/1000 strokes : 32.5

Tolerance
cm3/1000 strokes : +- 0.5

Check tolerance
cm3/1000S. : +- 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : +- 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : +- 2.0

Setting point w/out bumper spring

Rated speed rpm : 300

rack travel mm : 6.90

SET IDLE AUXILIARY SPRING

Rated speed rpm : 360

rack travel mm : 5.40

Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 710

Tolerance 1/min : +- 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : > 8.50

Rated speed rpm : 1000

CRT mm max. : 1.25

rack travel mm : 6.90

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.05

Tolerance mm : +- 0.05

Rated speed rpm : 1400

rack travel mm : 11.80

Tolerance mm : +- 0.10

Rated speed rpm : 2200

rack travel mm : 11.50

Tolerance mm : +- 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 32.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 9.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 315

Rack travel in mm : 13.00
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

Rated speed rpm : 1000

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 300

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 965

Injection pump
Pump designation : PES6M55C320RS174
EP type number : 0 410 056 988

Governor
Governor design. : RSF315/2300M72-3
Governor no. : 0 420 021 137

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603-Abgl. MJ90
Power KW : 76.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000s. : 3.0

Rated speed rpm : 300

Rack travel in mm : 7.10
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 8.0

Tolerance
cm3/1000 strokes : \pm 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm3/1000 strokes : 33.0

Tolerance
cm3/1000 strokes : \pm 0.5

Check tolerance
cm3/1000s. : \pm 1.5

Spreed
Tolerance

cm3/1000 strokes : 2.5

Check tolerance
cm3/1000s. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.30
Rated speed rpm : 2500

rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 300

rack travel mm : 7.10

SET IDLE AUXILIARY SPRING

Rated speed rpm : 360

rack travel mm : 5.40

Tolerance mm : \pm 0.10

rack travel mm : 2.50

Rated speed rpm : 670

Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 7.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.45

Tolerance mm : \pm 0.05

Rated speed rpm : 1800

rack travel mm : 11.90

Tolerance mm : \pm 0.10

Rated speed rpm : 2200

rack travel mm : 11.60

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 35.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 9.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 315

Rack travel in mm : 13.50
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

Rated speed rpm : 1000

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 300

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 966

Injection pump
Pump designation : PES6M55C320RS174
EP type number : 0 410 056 988

Governor
Governor design. : RSF315/2300M60-27
Governor no. : 0 420 021 134

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603-Abgl. MJ90
Power KW : 76.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

J20

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 290

Rack travel in mm : 6.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 7.0

Tolerance
cm³/1000 strokes : ± 0.5

Speed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 1.5
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 9.30
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 290
rack travel mm : 6.70

SET IDLE AUXILIARY SPRING

Rated speed rpm : 360
rack travel mm : 5.30
Tolerance mm : ± 0.10

rack travel mm : 2.50
Rated speed rpm : 660
Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 220
CRT mm min. : > 7.00

Rated speed rpm : 1000
CRT mm max. : 1.45

rack travel mm : 6.70
Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.45
Tolerance mm : ± 0.05

Rated speed rpm : 1800
rack travel mm : 11.90
Tolerance mm : ± 0.10

Rated speed rpm : 2200
rack travel mm : 11.60
Tolerance mm : ± 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 35.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 315

Rack travel in mm : 13.50
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 967

Injection pump
Pump designation : PES6M55C32ORS171-1
EP type number : 0 410 056 987

Governor
Governor design. : RSF315/2300M60-8
Governor no. : 0 420 021 114

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603-ECE
Power KW : 80.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 32.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

<hr/>	
Speed	
Tolerance	
cm ³ /1000 strokes :	2.5
<hr/>	
Check tolerance	
cm ³ /1000S.	: 3.0
<hr/>	
Rated speed rpm :	290
<hr/>	
Rack travel in mm :	7.20
Tolerance mm :	+ 0.10
Del. quantity	
cm ³ /1000 strokes :	7.0
Tolerance	
cm ³ /1000 strokes :	+ 0.5
Speed	
Tolerance	
cm ³ /1000 strokes :	1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm :	6.50
Tolerance mm :	+ 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
Ref. pressure	
ALDA / ADA hPa :	1100
Del. quantity	
cm ³ /1000 strokes :	32.5
Tolerance	
cm ³ /1000 strokes :	+ 0.5
Check tolerance	
cm ³ /1000S.	: + 1.5
Speed	
Tolerance	
cm ³ /1000 strokes :	2.5
Check tolerance	
cm ³ /1000S.	: 3.0

RATED SPEED

control lever	
position degree :	50.0
<hr/>	
rack travel mm :	9.20
Rated speed rpm :	2500
<hr/>	
rack travel mm :	0.50

Tolerance mm :	+ 0.50
Rated speed rpm :	2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm :	1000
<hr/>	
CRT mm max. :	1.75

LOW IDLE

control lever	
position degree :	14.0
tolerance degree :	+ 2.0

Setting point w/out bumper spring	
Rated speed rpm :	290
rack travel mm :	7.20

SET IDLE AUXILIARY SPRING

Rated speed rpm :	360
rack travel mm :	5.60
Tolerance mm :	+ 0.10

rack travel mm :	2.50
Rated speed rpm :	650
Tolerance 1/min :	+ 50

Load pick-up

Rated speed rpm :	220
CRT mm min. :	> 9.00

Rated speed rpm :	1000
CRT mm max. :	1.75

rack travel mm :	7.20
Rated speed rpm :	290

TORQUE CONTROL

Rated speed rpm :	1000
rack travel mm :	12.55
Tolerance mm :	+ 0.05

Rated speed rpm :	1400
rack travel mm :	12.40
Tolerance mm :	+ 0.10

Rated speed rpm :	2200
rack travel mm :	12.10
Tolerance mm :	+ 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 30.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.00

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 315

Rack travel in mm : 13.20
Tolerance mm : \pm 0.40
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113
Combination No. : 0 400 076 968
Injection pump
Pump designation : PES6M55C32ORS178
EP type number : 0 410 056 986
Governor
Governor design. : RSF315/2125M64-13
Governor no. : 0 420 021 128

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603A D35 USA
Power KW : 100.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 290

Rack travel in mm : 5.75
Tolerance mm : \pm 0.15

Del. quantity
cm³/1000 strokes : 7.0

Tolerance
cm³/1000 strokes : \pm 0.5

Spreed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.50
Tolerance mm : \pm 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity
cm³/1000 strokes : 60.0

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Spreed
Tolerance

cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 6.70

K01

Rated speed rpm : 2300

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2700

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 10.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 290

rack travel mm : 5.75

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400

rack travel mm : 3.85

Tolerance mm : \pm 0.25

Load pick-up

Rated speed rpm : 200

CRT mm min. : $>$ 7.00

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.75

Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 13.75

Tolerance mm : \pm 0.05

Rated speed rpm : 1600

rack travel mm : 12.80

Tolerance mm : \pm 0.10

Rated speed rpm : 2000

rack travel mm : 11.40

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1600

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1600
Del. quantity
cm3/1000 strokes : 56.3
Tolerance
cm3/1000 strokes : \pm 0.8
Check tolerance
cm3/1000S. : \pm 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 2000
Spreed
Del. quantity
cm3/1000 strokes : 50.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 41.5

K02

Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm3/1000 strokes : 52.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 8.3
Check tolerance
cm3/1000S. : \pm 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

Grad : $>$ 44.50

Grad : $<$ 42.00

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 10.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 10.0
tolerance degree : \pm 2.0
Rated speed rpm : 315
Tolerance
cm³/1000 strokes : \pm 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2700

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

TESTING & SETTING RACK TRAVEL SENSOR
POSITION

Test with KDEP-P400

TESTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850
Set quantity with
control lever
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 0.5
Voltage Volt : 1.636
Tolerance Volt : \pm 0.003
Check tolerance
Volt : \pm 0.001

ADJUSTMENT

control lever
position degree : 50.0
Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1850

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113

Combination No. : 0 400 076 971

Injection pump
Pump designation : PES6M55C320RS171
EP type number : 0 410 056 989

Governor
Governor design. : RSF315/2300M60-8
Governor no. : 0 420 021 114

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM603-ECE
Power KW : 80.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

K04

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 32.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spreed
Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 290

Rack travel in mm : 6.80
Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 strokes : \pm 0.5

Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 32.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 290
rack travel mm : 6.80

SET IDLE AUXILIARY SPRING

Rated speed rpm : 360
rack travel mm : 5.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 670
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220
CRT mm min. : $>$ 8.50

Rated speed rpm : 1000
CRT mm max. : 1.25

rack travel mm : 6.80
Rated speed rpm : 290

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 32.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0
Rated speed rpm : 315

Rack travel in mm : 13.00
Tolerance mm : +- 0.70
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 strokes : +- 3.5
Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2950

Rack travel in mm : 0.50
Tolerance mm : +- 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 290

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.02.96
Test oil : ISO 4113

Combination No. : 0 402 736 890

Injection pump
Pump designation : PES6P120A12ORS7314
EP type number : 0 412 726 901

Governor
Governor design. : RQV400...1250PA964
: -32K
Governor no. : 0 421 815 486

Cust. part No. : 3282607

Customer-spec. information
Customer : CUMMINS
Motor : 6BTAA
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. L/h : 135
Tolerance L/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

K08

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 12.50
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.30
Check
tolerance °NW : + 0.50

Start of delivery blocking

°NW after s.o.d. : 6.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1275

Rack travel in mm : 14.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 6.50
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed
Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 400
guide sleeve
travel mm : 1.39
Tolerance mm : \pm 0.20

Rated speed rpm : 1314
guide sleeve
travel mm : 7.65
Tolerance mm : \pm 0.15

Rated speed rpm : 864
guide sleeve
travel mm : 4.76
Tolerance mm : \pm 0.25

Rated speed rpm : 550

guide sleeve
travel mm : 3.33
Tolerance mm : \pm 0.25

Rated speed rpm : 1700
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1435

Rack travel in mm : 13.20
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1275
Aneroid pressure

hPa : 1600
Del. quantity

cm³/1000 strokes : 152.0
Tolerance

cm³/1000 strokes : \pm 1.0
Check tolerance

cm³/1000S. : \pm 4.0
Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 116.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1340
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1500
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 6.50
Tolerance mm : \pm 0.10

Rated speed rpm : 300

CRT mm min. : $>$ 8.50

Rated speed rpm : 430

TORQUE CONTROL

Rated speed rpm : 1275
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 400
rack travel mm : 12.40
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1275
Pressure hPa : 1600
rack travel mm : 14.40
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1275
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 1275

Pressure hPa : 400
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Pressure hPa : 950
rack travel mm : 13.50
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 270
Rated speed rpm : $<$ 340

Check
speed 1/min : $>$ 250
Check
speed 1/min : $<$ 360

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1340
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 6.50
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 244 044
Injection pump
Pump designation : PES4MW100/320RS1521
EP type number : 0 413 204 020
Governor
Governor design. : RGV400...1200MW147
Governor no. : 0 420 083 320

Cust. part No. : 51.11103-7412

Customer-spec. information
Customer : SNF
Motor : D0824 LFL04
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 8.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 135.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	7.5
Rated speed rpm :	400
Rack travel in mm :	4.80
Tolerance mm :	+ 0.20
Del. quantity	
cm3/1000 strokes :	23.0
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	400
guide sleeve	
travel mm :	1.55
Tolerance mm :	+ 0.25
Rated speed rpm :	1253
guide sleeve	
travel mm :	9.86
Tolerance mm :	+ 0.25
Rated speed rpm :	848
guide sleeve	
travel mm :	5.69
Tolerance mm :	+ 0.25
Rated speed rpm :	448
guide sleeve	
travel mm :	2.05
Tolerance mm :	+ 0.25
Rated speed rpm :	498
guide sleeve	
travel mm :	2.59
Tolerance mm :	+ 0.25
Rated speed rpm :	550
guide sleeve	
travel mm :	3.30
Tolerance mm :	+ 0.25

Rated speed rpm :	1500
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

Rated speed rpm :	1350
Rack travel in mm :	10.00
Tolerance mm :	+ 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	900
Aneroid pressure	
hPa :	800
Del. quantity	
cm3/1000 strokes :	135.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	7.5

CONTROL LEVER

control lever	
position degree :	125.0
tolerance degree :	+ 4.0

RATED SPEED

rack travel mm :	11.30
Rated speed rpm :	1253
Tolerance 1/min :	+ 5
rack travel mm :	4.00
Rated speed rpm :	1345
Tolerance 1/min :	+ 15
rack travel mm :	0.50
Tolerance mm :	+ 0.50
Rated speed rpm :	1450

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.10

Rated speed rpm : 300
CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 650
rack travel mm : 12.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 12.30
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 400
rack travel mm : 1.70
Tolerance mm : \pm 0.10

Pressure hPa : 130
rack travel mm : 0.30
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 800
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1253
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 4.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.02.96
Test oil : ISO 4113
Combination No. : 0 403 246 056
Injection pump
Pump designation : PES6MW100/720RS1527
EP type number : 0 413 206 026
Governor
Governor design. : RQV300...1300MW157
Governor no. : 0 420 083 343

Cust. part No. : 0270740502

Customer-spec. information
Customer : MB-NFZ
Motor : OM366LA
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 133.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 4.00
Tolerance mm : \pm 0.20

Del. quantity
cm3/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spread
Tolerance
cm3/1000 strokes : 2.0

Check tolerance
cm3/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300
guide sleeve
travel mm : 1.01
Tolerance mm : \pm 0.20

Rated speed rpm : 1354
guide sleeve
travel mm : 6.71
Tolerance mm : \pm 0.15

Rated speed rpm : 1100
guide sleeve
travel mm : 4.76
Tolerance mm : \pm 0.25

Rated speed rpm : 710
guide sleeve
travel mm : 3.03
Tolerance mm : \pm 0.25

Rated speed rpm : 1683
guide sleeve
travel mm : 12.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1780
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1500

Rack travel in mm : 9.00
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 1200

Del. quantity
cm3/1000 strokes : 133.0

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spread
Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm3/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 4.30

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.45
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.40
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 4.95
Tolerance mm : \pm 0.10

Pressure hPa : 450
rack travel mm : 1.90
Tolerance mm : \pm 0.10

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 200

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 4.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 446 250
Injection pump
Pump designation : PES6MW100/320RS1194
EP type number : 0 413 406 186
Governor
Governor design. : RQV300...1300MW108K
Governor no. : 0 420 083 998

Cust. part No. :

Customer-spec. information
Customer : PERKINS
Motor : 180 TI
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW before FB : 46.50

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 135.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.20

Del. quantity
cm3/1000 strokes : 16.0

Tolerance
cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000S. : + 4.5

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350
guide sleeve
travel mm : 10.20
Tolerance mm : + 0.20

Rated speed rpm : 300
guide sleeve
travel mm : 1.60
Tolerance mm : + 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : + 0.10

Rated speed rpm : 480
guide sleeve
travel mm : 3.40
Tolerance mm : + 0.30

GUIDE SLEEVE POSITION

Rated speed rpm : 1380

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 900

Del. quantity
cm3/1000 strokes : 135.0

Tolerance
cm3/1000 strokes : + 1.0

Check tolerance
cm3/1000S. : + 3.0

Spreed
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.30
Rated speed rpm : 1345
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1495
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm min. : > 7.50

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.35
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.75
Tolerance mm : \pm 0.15

Rated speed rpm : 700
rack travel mm : 12.75
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 900
rack travel mm : 14.35
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1300
rack travel mm : 9.30
Tolerance mm : \pm 0.10

Rated speed rpm : 1300

Pressure hPa : 220
rack travel mm : 11.05
Tolerance mm : \pm 0.15

Pressure hPa : 180
rack travel mm : 10.45
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 190
Rated speed rpm : < 240

Check
speed 1/min : > 170
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 127.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : 900
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 13.30
Rated speed rpm : 1345
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00

Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 strokes : ± 7.0
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.02.96
Test oil : ISO 4113
Combination No. : 0 403 446 316
Injection pump
Pump designation : PES6MW100/320RS1216
: -1
EP type number : 0 413 406 223
Governor
Governor design. : RQV350...1175MW113
: -2
Governor no. : 0 420 083 248
Cust. part No. :

Customer-spec. information

Customer : RVI
Motor : MIDR 060226 X
Power KW : 166.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 13.95
Tolerance mm : ± 0.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 275

Rack travel in mm : -7.80
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350
guide sleeve
travel mm : 1.41
Tolerance mm : + 0.25

Rated speed rpm : 1236
guide sleeve
travel mm : 7.00
Tolerance mm : + 0.25

Rated speed rpm : 907
guide sleeve
travel mm : 5.35
Tolerance mm : + 0.25

Rated speed rpm : 435
guide sleeve
travel mm : 2.49
Tolerance mm : + 0.25

Rated speed rpm : 485
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.25

Rated speed rpm : 600

guide sleeve
travel mm : 3.65
Tolerance mm : + 0.25

Rated speed rpm : 1790
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1440

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 300.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1225
Tolerance 1/min : + 15

rack travel mm : -9.90
Rated speed rpm : 1460
Tolerance 1/min : + 5

rack travel mm : -13.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 248.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.80
Tolerance mm : \pm 0.20

Rated speed rpm : 200
CRT mm min. : $>$ -7.00

TORQUE CONTROL

Rated speed rpm : 1175
Tolerance mm : \pm 0.05

Rated speed rpm : 700
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : -5.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -3.80
Tolerance mm : \pm 0.30

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -3.00
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -0.75
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 260

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : -1.00
Rated speed rpm : 1225
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25

Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 275
rack travel mm : -7.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 0 403 456 116A

Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205

Governor
Governor design. : RQ250/1200MW84-8
Governor no. : 0 420 082 063

Cust. part No. : 3-7378

Customer-spec. information
Customer : MAN
Motor : D 0826 LFL 07
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 161.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : \pm 0.20

Del. quantity
cm3/1000 strokes : 23.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5

Speed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 2.02
Tolerance mm : \pm 0.10

Rated speed rpm : 1257
guide sleeve
travel mm : 6.64
Tolerance mm : \pm 0.10

Rated speed rpm : 1200
guide sleeve
travel mm : 6.30
Tolerance mm : \pm 0.10

Rated speed rpm : 359
guide sleeve
travel mm : 4.09
Tolerance mm : \pm 0.10

Rated speed rpm : 480
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1430
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

L01

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 161.0
Tolerance
cm3/1000 strokes : \pm 1.0
Check tolerance
cm3/1000S. : \pm 4.0
Speed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1253
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
 rack travel mm : 5.60
 Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 13.10
 Tolerance mm : ± 0.05

Rated speed rpm : 1200
 rack travel mm : 13.10
 Tolerance mm : ± 0.10

Rated speed rpm : 800
 rack travel mm : 13.10
 Tolerance mm : ± 0.10

Rated speed rpm : 600
 rack travel mm : 13.10
 Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1200
 rack travel mm : 13.10
 Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -
 Rated speed rpm : 500
 rack travel mm : 9.55
 Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : 700
 rack travel mm : 12.45
 Tolerance mm : ± 0.15

Pressure hPa : 200
 rack travel mm : 10.05
 Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 1200

L02

Del. quantity
 cm³/1000 strokes : 159.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000s. : ± 5.0
 Speed
 Tolerance
 cm³/1000 strokes : 6.0
 Check tolerance
 cm³/1000s. : 9.0

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 165.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000s. : ± 5.0

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 170.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000s. : ± 5.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 78.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000s. : ± 3.0

BREAKAWAY

Rack travel in mm : 12.10
 Rated speed rpm : 1253
 Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 80.0
 Tolerance
 cm³/1000 strokes : ± 10.0

Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 0 403 456 117A

Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205

Governor
Governor design. : RQV250...1200MW83-2
Governor no. : 0 420 083 216

Cust. part No. : 3-7491

Customer-spec. information
Customer : MAN
Motor : D 0826 LFL 07
Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 161.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 250

Rack travel in mm : 5.60
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 23.0
Tolerance

cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250
guide sleeve
travel mm : 1.34
Tolerance mm : ± 0.25

Rated speed rpm : 1254
guide sleeve
travel mm : 10.73
Tolerance mm : ± 0.25

Rated speed rpm : 808
guide sleeve
travel mm : 6.06
Tolerance mm : ± 0.25

Rated speed rpm : 332
guide sleeve
travel mm : 2.23
Tolerance mm : ± 0.25

Rated speed rpm : 382
guide sleeve
travel mm : 2.82
Tolerance mm : ± 0.25

Rated speed rpm : 440
guide sleeve
travel mm : 3.33
Tolerance mm : ± 0.25

L05

Rated speed rpm : 1450
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1280

Rack travel in mm : 10.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 124.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1253
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 345
Tolerance 1/min : \pm 20

Rated speed rpm : 150

CRT mm min. : $>$ 7.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 13.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.10
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.55
Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : 700

rack travel mm : 12.45
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : 10.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

BREAKAWAY

Rack travel in mm : 12.10
Rated speed rpm : 1253
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 0 403 466 132

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131

Governor
Governor design. : RSV400...1250MW2A319
: -19
Governor no. : 0 420 085 211

Cust. part No. : 3921148

Customer-spec. information
Customer : CDC
Motor : 6 CTA-8.3 L
Power KW : 188.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

L08

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 14.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 145.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 8.00
Tolerance mm : ± 0.30

Del. quantity
cm³/1000 strokes : 21.0
Tolerance

cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1395
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 14.05
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.05
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 140.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 13.00
Rated speed rpm : 1295
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 8.00
Tolerance mm : ± 0.30
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 466 134
Injection pump
Pump designation : PES6MW100/120RS1137
: -1
EP type number : 0 413 406 157
Governor
Governor design. : RSV450...1100MW2A319
: -21
Governor no. : 0 420 085 213
Cust. part No. : 3921150

Customer-spec. information
Customer : CDC
Motor : 6 CTA 8.3
Power KW : 172.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 9 410 270 183
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 017
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery blocking
°NW after s.o.d. : 11.00
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750
Rack travel in mm : 14.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 151.5
Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 6.80

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : + 0.35

governor spring

pre-tension

click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 151.5

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 100.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50

Rated speed rpm : 1160

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1255

Tolerance 1/min : + 5

rack travel mm : 1.00

Tolerance mm : + 0.70

Rated speed rpm : 1370

rack travel mm : 4.00

Rated speed rpm : 1260

LOW IDLE

control lever

position degree : 76.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 6.30

Testing:

Rated speed rpm : 450

rack travel mm : 6.80

Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 750

rack travel mm : 14.05

Tolerance mm : + 0.05

Rated speed rpm : 1100

rack travel mm : 12.60

Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 13.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

BREAKAWAY

Rack travel in mm : 11.50
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
rack travel mm : 6.80
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 466 145
Injection pump
Pump designation : PES6MW100/120RS1137
: -2
EP type number : 0 413 406 180
Governor
Governor design. : RSV550...1100MW2A319
: -28
Governor no. : 0 420 085 225
Cust. part No. : 3925549

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 191.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 7.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 150.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.40
Rated speed rpm : 1165
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : + 5

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1245

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 6.50
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.45
Tolerance mm : + 0.05

BREAKAWAY

Rack travel in mm : 13.40
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
rack travel mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 0 403 474 008

Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107

Governor
Governor design. : RSV400...1000MW1A333
Governor no. : 0 420 085 118

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : 914 TI
Power KW : 120.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

L17

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 6.20

Tolerance mm : \pm 0.20

Del. quantity

cm³/1000 strokes : 22.0

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.5

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : \pm 0.35

governor spring

pre-tension

click setting x : 3.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 152.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance

cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 100.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.15

Rated speed rpm : 1025

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1070

Tolerance 1/min : \pm 15

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1175

rack travel mm : 4.00

Rated speed rpm : 1070

LOW IDLE

control lever

position degree : 76.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.70

Testing:

Rated speed rpm : 400

rack travel mm : 6.20

Tolerance mm : \pm 0.10

rack travel mm : 2.00

Rated speed rpm : 510

Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.15

Tolerance mm : \pm 0.05

Rated speed rpm : 500

rack travel mm : 12.15

Tolerance mm : \pm 0.05

Rated speed rpm : 600

rack travel mm : 12.15

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 11.15
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 6.20
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113

Combination No. : 0 403 474 008A

Injection pump
Pump designation : PES4MW100/720RS1181
EP type number : 0 413 404 107

Governor
Governor design. : RSV400...1000MW1A333
Governor no. : 0 420 085 118

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : 914 TI
Power KW : 120.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

L20

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
 cm³/1000S. : 7.5
 Rated speed rpm : 400
 Rack travel in mm : 6.20
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 22.0
 Tolerance
 cm³/1000 strokes : ± 2.0
 Check tolerance
 cm³/1000S. : ± 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800
 Rack travel in mm : 0.65
 Tolerance mm : ± 0.35
 governor spring
 pre-tension
 click setting x : 3.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 152.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 4.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.0
 Check tolerance
 cm³/1000S. : 7.5

CONTROL LEVER

control lever
 position degree : 100.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.15
 Rated speed rpm : 1025
 Tolerance 1/min : ± 5
 rack travel mm : 4.00
 Rated speed rpm : 1070
 Tolerance 1/min : ± 15
 rack travel mm : 1.00
 Tolerance mm : ± 0.70
 Rated speed rpm : 1175
 rack travel mm : 4.00
 Rated speed rpm : 1070

LOW IDLE

control lever
 position degree : 76.0
 tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
 rack travel mm : 5.70

Testing:

Rated speed rpm : 400
 rack travel mm : 6.20
 Tolerance mm : ± 0.10

rack travel mm : 2.00
 Rated speed rpm : 510
 Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 12.15
 Tolerance mm : ± 0.05

Rated speed rpm : 500
 rack travel mm : 12.15
 Tolerance mm : ± 0.05

Rated speed rpm : 600
 rack travel mm : 12.15

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 11.15
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 474 012B
Injection pump
Pump designation : PES4MW100/720RS1207
EP type number : 0 413 404 113
Governor
Governor design. : RSV350...1000MWOA333
Governor no. : 0 420 085 153

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 914 T
Power KW : 115.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

L23

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 6.20

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 22.0

Tolerance
cm3/1000 strokes : \pm 2.0

Check tolerance
cm3/1000S. : \pm 4.5

Spreed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : \pm 0.35

governor spring

pre-tension

click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure

hPa : -

Del. quantity
cm3/1000 strokes : 144.5

Tolerance
cm3/1000 strokes : \pm 1.0

Check tolerance
cm3/1000S. : \pm 4.0

Spreed

Tolerance
cm3/1000 strokes : 4.0

Check tolerance
cm3/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1025

Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1080

Tolerance 1/min : \pm 15

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1275

rack travel mm : 4.00

Rated speed rpm : 1080

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.70

Testing:

Rated speed rpm : 400

rack travel mm : 6.20

Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Rated speed rpm : 500

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Rated speed rpm : 700

rack travel mm : 12.30

Tolerance mm : \pm 0.05

Rated speed rpm : 450
rack travel mm : 13.15
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

BREAKAWAY

Rack travel in mm : 11.30
Rated speed rpm : 1025
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 400
rack travel mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 476 138
Injection pump
Pump designation : PES6MW100/72ORS1130
: -3
EP type number : 0 413 406 235
Governor
Governor design. : RSV350...1300MWOA318
Governor no. : 0 420 085 052
Cust. part No. : 0250748802

Customer-spec. information

Customer : MB-NFZ
Motor : OM 366 A
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1280

Rack travel in mm : 10.10
Tolerance mm : ± 0.10

Del. quantity
cm3/1000 strokes : 77.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 6.00

Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 6.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1280

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 77.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.10
Rated speed rpm : 1325
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1280
rack travel mm : 10.10
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 10.50
Tolerance mm : ± 0.10

Rated speed rpm : 825
rack travel mm : 10.25
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 74.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

BREAKAWAY

Rack travel in mm : 9.10
Rated speed rpm : 1325
Tolerance 1/min : ± 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.02.96
Test oil : ISO 4113
Combination No. : 0 403 476 139
Injection pump
Pump designation : PES6MW100/720RS1129
: -2
EP type number : 0 413 406 140
Governor
Governor design. : RSV350...1200MWOA362
Governor no. : 0 420 085 245
Cust. part No. : 0260741802

Customer-spec. information

Customer : MB-NFZ
Motor : OM 366 A
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

M01

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.50
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 75.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000s. : ± 3.0

Spread
Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 6.55

Tolerance mm : \pm 0.35

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spreed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.65

Tolerance mm : \pm 0.35

governor spring

pre-tension

click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure

hPa : 750

Del. quantity
cm³/1000 strokes : 75.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spreed

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1450

rack travel mm : 4.00

Rated speed rpm : 1325

rack travel mm : 9.50

Rated speed rpm : 1245

Tolerance 1/min : \pm 8

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1240

rack travel mm : 9.50

Rated speed rpm : 1284

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1241

rack travel mm : 9.50

Rated speed rpm : 1285

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1242

rack travel mm : 9.50

Rated speed rpm : 1286

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1243

rack travel mm : 9.50

Rated speed rpm : 1287

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1244

rack travel mm : 9.50

Rated speed rpm : 1288

Tolerance 1/min : \pm 4

rack travel mm : 4.00

Rated speed rpm : 1245

rack travel mm : 9.50

Rated speed rpm : 1289

Tolerance 1/min : \pm 4

rack travel mm : 4.00

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 6.55

Testing:

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : \pm 30

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 10.50
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 11.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 750
rack travel mm : 11.35
Tolerance mm : \pm 0.05

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
Tolerance mm : \pm 0.10

Rated speed rpm : 500

Pressure hPa : 260
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Pressure hPa : 150

MQ3

rack travel mm : 0.35
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 750
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 46.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350
rack travel mm : 6.55
Tolerance mm : \pm 0.35
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.10.95
Test oil : ISO 4113

Combination No. : 0 402 076 784

Injection pump
Pump designation : PES6P120A72ORS3363
EP type number : 0 412 026 786

Governor
Governor design. : RSV400...1100P2A534
: -15
Governor no. : 0 421 833 509

Cust. part No. : RE64815

Customer-spec. information
Customer : DEERE
Motor : 6076HF030
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

M05

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 14.00
Difference ° CS : 6.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 171.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Del. quantity
cm³/1000 strokes : 20.5

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 171.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.60
Rated speed rpm : 1155
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1210

LOW IDLE

control lever
position degree : 69.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 4.70

Testing:

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.60
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.15
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.70
Tolerance mm : \pm 0.20

Rated speed rpm : 500

Pressure hPa : 990
rack travel mm : 12.40
Tolerance mm : \pm 0.20

Pressure hPa : 540
rack travel mm : 10.60
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : $>$ 100

Check
speed 1/min : $>$ 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 11.60
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.96
Test oil : ISO 4113

Combination No. : 0 402 736 899

Injection pump
Pump designation : PES6P120A120RS7370
EP type number : 0 412 736 924

Governor
Governor design. : RQV400...1250PA1212
: -1K
Governor no. : 0 421 815 502

Cust. part No. : 3931303

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

M08

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 170.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Del. quantity
cm³/1000 strokes : 19.5

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 420
guide sleeve
travel mm : 1.56
Tolerance mm : ± 0.20

Rated speed rpm : 1412
guide sleeve
travel mm : 9.88
Tolerance mm : ± 0.15

Rated speed rpm : 1020
guide sleeve
travel mm : 5.97
Tolerance mm : ± 0.25

Rated speed rpm : 2000
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 170.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 117.5
tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 12.80
Rated speed rpm : 1335
Tolerance 1/min : ± 25

rack travel mm : 4.00
Rated speed rpm : 1580
Tolerance 1/min : ± 5

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 65.5
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 420
rack travel mm : 6.20
Tolerance mm : ± 0.20

Rated speed rpm : 300

CRT mm min. : > 7.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.85
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 12.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 9.10
Tolerance mm : \pm 0.20

Rated speed rpm : 1250

Pressure hPa : 440
rack travel mm : 11.70
Tolerance mm : \pm 0.30

Pressure hPa : 265
rack travel mm : 10.00
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 315

Check
speed 1/min : > 80
Check
speed 1/min : < 325

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 123.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 12.80
Rated speed rpm : 1335
Tolerance 1/min : \pm 25

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.70
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113
Combination No. : 0 402 736 900
Injection pump
Pump designation : PES6P120A120RS7351
EP type number : 0 412 726 922

Governor
Governor design. : RQV350...1100PA1173
Governor no. : 0 421 815 505

Cust. part No. : 3931335

Customer-spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 244.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.75
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 250.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0
Del. quantity cm ³ /1000 strokes	: 24.5
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 5.0
Speed Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 2.11
Tolerance mm	: ± 0.20
Rated speed rpm	: 1273
guide sleeve travel mm	: 8.91
Tolerance mm	: ± 0.15
Rated speed rpm	: 781
guide sleeve travel mm	: 5.08
Tolerance mm	: ± 0.25
Rated speed rpm	: 420
guide sleeve travel mm	: 3.10
Tolerance mm	: ± 0.25
Rated speed rpm	: 1640
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 250.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 115.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 14.20
Rated speed rpm	: 1250
Tolerance 1/min	: ± 15
rack travel mm	: 7.50
Rated speed rpm	: 1355
Tolerance 1/min	: ± 15
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 1500

LOW IDLE

control lever position degree	: 69.0
tolerance degree	: ± 4.0

Testing:

Rated speed rpm	: 350
rack travel mm	: 6.90
Tolerance mm	: ± 0.20
Rated speed rpm	: 250
CRT mm min.	: > 7.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 15.75
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 14.50
Tolerance mm : \pm 0.20

Rated speed rpm : 1200
rack travel mm : 15.30
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 14.70
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 1100
rack travel mm : 9.50
Tolerance mm : \pm 0.20

Rated speed rpm : 1100

Pressure hPa : 765
rack travel mm : 14.10
Tolerance mm : \pm 0.20

Pressure hPa : 330
rack travel mm : 11.10
Tolerance mm : \pm 0.20

START CUT-OUT

Rated speed rpm : > 100
Rated speed rpm : < 290

Check
speed 1/min : > 80
Check
speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 236.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 95.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 14.20
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.90
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 191.5
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.03.96
Test oil : ISO 4113
Combination No. : 0 402 776 821
Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943

Governor
Governor design. : RSV400...900P7A607
Governor no. : 0 421 833 532

Cust. part No. : RE62687

Customer-spec. information
Customer : DEERE
Motor : 6081 HF001
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.90
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 261.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 28.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 261.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.90
Rated speed rpm : 905
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 940
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1025

rack travel mm : 4.00
Rated speed rpm : 970

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.30

Testing:

Rated speed rpm : 400
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 13.90
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Check
speed 1/min : > 80

BREAKAWAY

Rack travel in mm : 12.90
Rated speed rpm : 905
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.03.96
Test oil : ISO 4113

Combination No. : 0 402 776 824

Injection pump
Pump designation : PES6P120A720RS7382
EP type number : 0 412 726 943

Governor
Governor design. : RSV400...900P7A610
: -2
Governor no. : 0 421 833 533

Cust. part No. : RE63770

Customer-spec. information
Customer : DEERE
Motor : 6081 HF001
Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.90
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 261.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Del. quantity
cm³/1000 strokes : 28.5

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 261.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.90
Rated speed rpm : 905
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 940
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1025

rack travel mm : 4.00
Rated speed rpm : 970

LOW IDLE

control lever
position degree : 82.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.30

Testing:

Rated speed rpm : 400
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 13.90
Tolerance mm : \pm 0.05

START CUT-OUT

Rated speed rpm : > 100
Check
speed 1/min : > 80

BREAKAWAY

Rack travel in mm : 12.90
Rated speed rpm : 905
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113
Combination No. : 9 400 030 735
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. :
Governor no. : 9 420 034 714

Cust. part No. : 3929411

Customer-spec. information
Customer : CDC
Motor : 6BT
Power KW : 78.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 72.5

<hr/>	
Tolerance	
cm3/1000 strokes	: + 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: + 3.0
<hr/>	
Speed	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 6.5
<hr/>	
Del. quantity	
cm3/1000 strokes	: 18.5
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring	
pre-tension	
click setting x	: 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 72.5
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 96.0

RATED SPEED

rack travel mm	: 8.30
Rated speed rpm	: 1165
Tolerance 1/min	: + 5
rack travel mm	: 4.50
Rated speed rpm	: 1215
Tolerance 1/min	: + 5
rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1300

LOW IDLE

control lever	
position degree	: 84.5

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 4.60

Testing:

Rated speed rpm	: 500
rack travel mm	: 5.10
Tolerance mm	: + 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 9.35
Tolerance mm	: + 0.05
Rated speed rpm	: 800
rack travel mm	: 10.00
Tolerance mm	: + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

BREAKAWAY

Rack travel in mm : 8.30
Rated speed rpm : 1165
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.02.96
Test oil : ISO 4113

Combination No. : 0 400 074 087

Injection pump
Pump designation : PES4M55C320RS175
EP type number : 0 410 054 957

Governor
Governor design. : RSV350...1650MOC353
: -7
Governor no. : 0 420 033 043

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601 (2,3L)
Power KW : 51.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

M25

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1630

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance cm ³ /1000S.	:	3.0
Rated speed rpm	:	350
Del. quantity cm ³ /1000 strokes	:	7.0
Tolerance cm ³ /1000 strokes	: ±	1.0
Speed Tolerance cm ³ /1000 strokes	:	1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm	:	800
Rack travel in mm	:	0.65
Tolerance mm	: ±	0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1630
Ref. pressure ALDA / ADA hPa	:	-
Del. quantity cm ³ /1000 strokes	:	40.0
Tolerance cm ³ /1000 strokes	: ±	0.5
Check tolerance cm ³ /1000S.	: ±	1.5
Speed Tolerance cm ³ /1000 strokes	:	2.5
Check tolerance cm ³ /1000S.	:	3.0

RATED SPEED

control lever position degree	:	113.0
rack travel mm	:	1.00
Tolerance mm	: ±	0.70
Rated speed rpm	:	2000

LOW IDLE

control lever position degree	:	76.0
tolerance degree	: ±	4.0

Load pick-up

Rated speed rpm	:	100
CRT mm min.	:	> 20.10
rack travel mm	:	5.40
Rated speed rpm	:	350

SET IDLE AUXILIARY SPRING

rack travel mm	:	2.00
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TORQUE CONTROL

Rated speed rpm	:	1630
rack travel mm	:	12.15
Tolerance mm	: ±	0.05

Rated speed rpm	:	1000
rack travel mm	:	12.70
Tolerance mm	: ±	0.10

Rated speed rpm	:	1400
rack travel mm	:	12.40
Tolerance mm	: ±	0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure ALDA / ADA hPa	:	-
Rated speed rpm	:	1000
Del. quantity cm ³ /1000 strokes	:	40.5
Tolerance cm ³ /1000 strokes	: ±	1.0
Check tolerance cm ³ /1000S.	: ±	2.0
Speed Tolerance cm ³ /1000 strokes	:	2.5
Check tolerance cm ³ /1000S.	:	3.0

Ref. pressure ALDA / ADA hPa	:	-
Rated speed rpm	:	1400
Speed Del. quantity cm ³ /1000 strokes	:	39.8

Tolerance
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.10
Del. quantity
cm3/1000 strokes : 52.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 76.0
tolerance degree : +- 4.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 76.0
tolerance degree : +- 4.0

control lever
position degree : 113.0

ADJUSTMENT

control lever
position degree : 113.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.03.96
Test oil : ISO 4113

Combination No. : 0 400 074 778

Injection pump
Pump designation : PES4M60C320RS185
EP type number : 0 410 064 006

Governor
Governor design. : RSF360/1900M79
Governor no. : 0 420 021 280

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

M28

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 59.5

Tolerance
cm³/1000 strokes : ± 0.7

Check tolerance
cm³/1000S. : ± 1.7

Speed
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 3.5

Rated speed rpm : 360

Rack travel in mm : 6.00
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 strokes : +- 0.5
Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.00
Tolerance mm : +- 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm3/1000 strokes : 59.5
Tolerance
cm3/1000 strokes : +- 0.7
Check tolerance
cm3/1000S. : +- 1.7
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.5

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.30
Rated speed rpm : 2200

rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 2600

SET IDLE CONTROL LEVER POSITION

NO1

Rated speed rpm : 900

CRT mm max. : 1.95

LOW IDLE

control lever
position degree : 12.0
tolerance degree : +- 2.0

Setting point w/out bumper spring
Rated speed rpm : 360
rack travel mm : 6.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.00
Tolerance mm : +- 0.10

Load pick-up

Rated speed rpm : 250

CRT mm min. : > 9.00

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00
Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.80
Tolerance mm : +- 0.05

Rated speed rpm : 1500
rack travel mm : 13.20
Tolerance mm : +- 0.10

Rated speed rpm : 1900
rack travel mm : 12.50
Tolerance mm : +- 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600

rack travel mm : -0.25
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : \pm 0.10

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 55.5
Tolerance
cm³/1000 strokes : \pm 1.2
Check tolerance
cm³/1000S. : \pm 2.2
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : \pm 0.7

Check tolerance
cm³/1000S. : \pm 1.7
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 54.3
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

LOW IDLE

Rated speed rpm : 360
rack travel mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : > 42.00

Grad : < 39.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 12.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 12.0
tolerance degree : \pm 2.0
Rated speed rpm : 360

Rack travel in mm : 10.60
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 34.5
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2600

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100
Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.03.96
Test oil : ISO 4113

Combination No. : 0 400 074 876

Injection pump
Pump designation : PES4M60C32ORS185
EP type number : 0 410 064 006

Governor
Governor design. : RSF360/190DM84
Governor no. : 0 420 021 287

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

NO4

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 59.5

Tolerance
cm3/1000 strokes : ± 0.7

Check tolerance
cm3/1000S. : ± 1.7

Spreed
Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 3.5

Rated speed rpm : 360

Rack travel in mm : 5.90

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : \pm 0.5

Spread
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.00

Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1850

Del. quantity
cm3/1000 strokes : 59.5

Tolerance
cm3/1000 strokes : \pm 0.7

Check tolerance
cm3/1000S. : \pm 1.7

Spread
Tolerance

cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 3.5

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 6.45

Rated speed rpm : 2150

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 2600

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.95

LOW IDLE

control lever

position degree : 12.0

tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 360

rack travel mm : 5.90

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.00

Tolerance mm : \pm 0.10

Load pick-up

Rated speed rpm : 250

CRT mm min. : 10.90

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 5.90

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm : \pm 0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm : \pm 0.10

Rated speed rpm : 1900

rack travel mm : 12.60

Tolerance mm : \pm 0.15

Rated speed rpm : 500

rack travel mm : 15.30

Tolerance mm : \pm 0.30

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600
rack travel mm : -0.25
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : \pm 0.10

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 58.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm³/1000 strokes : 55.5
Tolerance
cm³/1000 strokes : \pm 1.2
Check tolerance
cm³/1000S. : \pm 2.2
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

N06

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 strokes : \pm 0.7
Check tolerance
cm³/1000S. : \pm 1.7
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 64.3
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 54.3
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 8.5

LOW IDLE

Rated speed rpm : 360

rack travel mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 12.0
tolerance degree : \pm 2.0

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

control lever
position degree : 12.0
tolerance degree : \pm 2.0
Rated speed rpm : 360

Rack travel in mm : 11.70
Tolerance mm : \pm 0.70
Del. quantity
cm³/1000 strokes : 41.5
Tolerance
cm³/1000 strokes : \pm 3.5

Current A : 1.80

control lever
position degree : 50.0
Rated speed rpm : 2600

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

Current short-
duration A : 3.00

Starting test

Rated speed rpm : 100

Current A : 1.80

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.03.96
Test oil : ISO 4113

Combination No. : 0 400 074 883

Injection pump
Pump designation : PES4M60C320RS185
EP type number : 0 410 064 006

Governor
Governor design. : RSF375/1900M78
Governor no. : 0 420 021 274

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601 D23 LA
Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

N08

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 2.05
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 21.00
Tolerance mm : +- 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : +- 0.20
Check
tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80
Tolerance mm : +- 0.05

Del. quantity
cm3/1000 strokes : 59.5

Tolerance
cm3/1000 strokes : +- 0.7

Check tolerance
cm3/1000S. : +- 1.7

Speed
Tolerance
cm3/1000 strokes : 3.0

Check tolerance
cm3/1000S. : 3.5
Rated speed rpm : 375
Rack travel in mm : 6.00
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 6.5
Tolerance
cm3/1000 strokes : +- 0.5
Spreed
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 5.00
Tolerance mm : +- 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1850
Del. quantity
cm3/1000 strokes : 59.5
Tolerance
cm3/1000 strokes : +- 0.7
Check tolerance
cm3/1000S. : +- 1.7
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.5

RATED SPEED

control lever
position degree : 50.0
rack travel mm : 8.30
Rated speed rpm : 2200
rack travel mm : 0.50
Tolerance mm : +- 0.50
Rated speed rpm : 2600

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900
CRT mm max. : 1.95

LOW IDLE

control lever
position degree : 12.0
tolerance degree : +- 2.0

Setting point w/out bumper spring
Rated speed rpm : 375
rack travel mm : 6.00

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500
rack travel mm : 4.20
Tolerance mm : +- 0.10

Load pick-up

Rated speed rpm : 250
CRT mm min. : > 9.00

Rated speed rpm : 900
CRT mm max. : 1.95
rack travel mm : 6.00
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.80
Tolerance mm : +- 0.05

Rated speed rpm : 1500
rack travel mm : 13.20
Tolerance mm : +- 0.10

Rated speed rpm : 1900
rack travel mm : 12.50
Tolerance mm : +- 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1600

rack travel mm : -0.25
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
rack travel mm : -2.65
Tolerance mm : +- 0.10

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -4.30
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 58.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1850
Rated speed rpm : 1900
Spreed
Del. quantity
cm3/1000 strokes : 55.5
Tolerance
cm3/1000 strokes : +- 1.2
Check tolerance
cm3/1000S. : +- 2.2
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.5

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 43.0
Tolerance
cm3/1000 strokes : +- 0.7

Check tolerance
cm3/1000S. : +- 1.7
Spreed
Tolerance
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 3.5

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1850

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm3/1000 strokes : 54.3
Tolerance
cm3/1000 strokes : +- 4.0
Check tolerance
cm3/1000S. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 8.5

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

Grad : > 42.00

Grad : < 39.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 12.0
tolerance degree : +- 2.0

Rated speed rpm : 425
Rack travel in mm : 8.40
Tolerance mm : \pm 0.80
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5
Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 12.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.02.96
Test oil : ISO 4113
Combination No. : 0 400 074 898
Injection pump
Pump designation : PES4M55C320RS172
EP type number : 0 410 054 958
Governor
Governor design. : RSF375/2300M56-10
Governor no. : 0 420 021 130

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM601-Abgl. MJ90
Power KW : 53.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 17.00
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 1.5

Speed

Tolerance
cm3/1000 strokes : 2.5

Check tolerance
cm3/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 6.30

Tolerance mm : \pm 0.10

Del. quantity
cm3/1000 strokes : 6.5

Tolerance
cm3/1000 strokes : \pm 0.5

Spread
Tolerance
cm3/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 1100
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 strokes : \pm 0.5
Check tolerance
cm3/1000S. : \pm 1.5
Spread
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.50
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

CRT mm max. : 1.45

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 375
rack travel mm : 6.30

SET IDLE AUXILIARY SPRING

Rated speed rpm : 450
rack travel mm : 4.70
Tolerance mm : \pm 0.10

rack travel mm : 2.50
Rated speed rpm : 670
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 250
CRT mm min. : $>$ 11.00

Rated speed rpm : 900
CRT mm max. : 1.45

rack travel mm : 6.30
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1400
rack travel mm : 12.05
Tolerance mm : \pm 0.10

Rated speed rpm : 2300
rack travel mm : 11.40
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : +- 0.10

MEASUREMENT

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : +- 0.10

Rated speed rpm : 900
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : +- 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 strokes : +- 0.8
Check tolerance
cm3/1000S. : +- 1.8
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2300
Spreed
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000S. : +- 2.0
Spreed
Tolerance
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm3/1000 strokes : 52.0
Spreed
Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000S. : 6.0

LOW IDLE

Del. quantity
cm3/1000 strokes : 7.8
Check tolerance
cm3/1000S. : +- 2.3
Spreed
Check tolerance
cm3/1000S. : 1.5

Grad : > 49.00

Grad : < 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : +- 2.0

Rated speed rpm : 425

Rack travel in mm : 8.90
Tolerance mm : +- 0.80
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : +- 3.5
Check tolerance
cm3/1000S. : +- 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.02.96
Test oil : ISO 4113
Combination No. : 0 400 075 952
Injection pump
Pump designation : PES5M55C32ORS170
EP type number : 0 410 055 977
Governor
Governor design. : RSF350/2300M56-5
Governor no. : 0 420 021 112

Cust. part No. :

Customer-spec. information
Customer : MB-PKW
Motor : OM602-ECE
Power KW : 66.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 469 990 351
Inlet press. bar : 1.0
Test nozzle holder
assembly : 1 688 901 111
Opening pressure
bar : 148.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : G-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 19.50
Tolerance : ± 0.20
Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 350

Rack travel in mm : 6.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 6.8

Tolerance
cm³/1000 strokes : \pm 0.5

Speed
Tolerance
cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure
ALDA / ADA hPa : 1100

Del. quantity
cm³/1000 strokes : 33.5

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000S. : \pm 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

rack travel mm : 8.70
Rated speed rpm : 2500

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 2950

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.25

LOW IDLE

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 6.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 720
Tolerance 1/min : \pm 50

Load pick-up

Rated speed rpm : 220

CRT mm min. : $>$ 9.50

Rated speed rpm : 1000

CRT mm max. : 1.25

rack travel mm : 6.60
Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 2200
rack travel mm : 11.50
Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
Del. quantity
cm³/1000 strokes : 33.8
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 2200
Spreed
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : $>$ 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed
Check tolerance
cm³/1000S. : 1.5

Grad : $>$ 49.00

Grad : $<$ 46.50

SETTING PNEUMATIC FAST IDLE (ELA)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 400

Rack travel in mm : 7.50
Tolerance mm : \pm 0.80
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5

Vacuum hPa : 400.0

SETTING/TESTING ELECTRONIC IDLE
REGULATION (ELR)

control lever
position degree : 14.0
tolerance degree : \pm 2.0

control lever
position degree : 50.0

ADJUSTMENT

control lever
position degree : 50.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.11.95

Test oil : ISO 4113

Combination No. : 0 401 846 859

Injection pump
Pump designation : PE6P120A320RS3196Q
EP type number : 0 411 826 776

Governor
Governor design. : RQV200...1100PA729
: -1

Governor no. : 0 421 813 470

Cust. part No. : 394505

Customer-spec. information
Customer : SCANIA
Motor : DS9 08

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 10.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 125.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 225

Rack travel in mm : 4.70
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 225
guide sleeve
travel mm : 0.65
Tolerance mm : \pm 0.20

Rated speed rpm : 1155
guide sleeve
travel mm : 8.50
Tolerance mm : \pm 0.15

Rated speed rpm : 719
guide sleeve
travel mm : 5.54
Tolerance mm : \pm 0.25

Rated speed rpm : 430
guide sleeve
travel mm : 3.90
Tolerance mm : \pm 0.25

Rated speed rpm : 1440

N21

guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1315

Rack travel in mm : 9.00
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 59.0
tolerance degree : \pm 4.0

control lever
position degree : 115.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.00
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 63.0
tolerance degree : \pm 4.0

control lever
position degree : 9.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 225
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 125
CRT mm min. : $>$ 6.50

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 10.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 10.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

BREAKAWAY

Rack travel in mm : 9.00
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 225
rack travel mm : 4.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96

Test oil : ISO 4113

Combination No. : 0 401 856 159

Injection pump
Pump designation : PE6P110A721RS369
EP type number : 0 411 816 121

Governor
Governor design. : RQ300/1300PA412-6
Governor no. : 0 421 801 638

Cust. part No. :

Customer-spec. information
Customer : HAEP
Motor : WD615.60

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 147.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 9.00
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600
Rack travel in mm : 16.40
Tolerance mm : + 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.10
Rated speed rpm : 1353
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 420
Tolerance 1/min : + 20

Rated speed rpm : 100

CRT mm min. : > 7.40

TORQUE CONTROL

Dimension a mm : 0.40
Rated speed rpm : 1300
rack travel mm : 14.15
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 14.40
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.20

Rated speed rpm : 1100
rack travel mm : 14.40

Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 700
rack travel mm : 14.40
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 12.50
Tolerance mm : \pm 0.10

Rated speed rpm : 700

Pressure hPa : 300
rack travel mm : 13.00
Tolerance mm : \pm 0.10

Pressure hPa : 390
rack travel mm : 14.15
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 13.10
Rated speed rpm : 1353

N25

Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 9.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.02.96
Test oil : ISO 4113
Combination No. : 0 401 856 706
Injection pump
Pump designation : PE6P110A721RS3101
EP type number : 0 411 816 725

Governor
Governor design. : RQ300/1200PA412-7
Governor no. : 0 421 801 639

Cust. part No. :

Customer-spec. information
Customer : HAEP
Motor : WD615.67

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 5.70
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.5

Spreed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.00
Tolerance mm : ± 0.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spreed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1253
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1330
Tolerance 1/min : ± 15

rack travel mm : 0.75
Tolerance mm : ± 0.75
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 425
Tolerance 1/min : ± 20

Rated speed rpm : 100

CRT mm min. : > 7.20

TORQUE CONTROL

Dimension a mm : 0.35
Rated speed rpm : 1200
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 12.00
Tolerance mm : ± 0.10

Rated speed rpm : 600
rack travel mm : 12.30
Tolerance mm : ± 0.25

Rated speed rpm : 1075
rack travel mm : 11.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 700
rack travel mm : 12.00
Tolerance mm : \pm 0.10

MEASUREMENT

Pressure hPa : -
Rated speed rpm : 700
rack travel mm : 9.20
Tolerance mm : \pm 0.10

Rated speed rpm : 700

Pressure hPa : 330
rack travel mm : 9.95
Tolerance mm : \pm 0.15

Pressure hPa : 420
rack travel mm : 11.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

BREAKAWAY

Rack travel in mm : 10.50
Rated speed rpm : 1253
Tolerance 1/min : \pm 8

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 19.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
rack travel mm : 5.70
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet